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UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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U. S. Department of Agriculture

PROGRAM..... Chats by the Weather Man. RELEASE..... Wed. Jan. 12.

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ANNOUNCEMENT: When you received that New Year's greeting, stamped AIR MAIL, did you wonder about the story of thrills and danger that may lay behind it? A story as fascinating as those of the Pony Express of early days. The U.S. Weather Bureau is doing everything possible to help make the air ways safer. In tonight's Chat, the Weather Man will tell you about it.

* * * * *

We were down at the flying field -- where the earth meets the sky -- a friend and I. Waiting for the great mail plane to come in from the West. It was due at 12:01. It was then 11:50. We had 11 minutes to wait.

Out on the field, several planes were being put in trim for their adventurous journeys in the sky. There they stood -- impatient -- their long, blunt snouts pointing off into the air. They seemed nervous -- eager -- impatient to be off. High above us came the insistent drone of a couple of planes darting through the clouds as if playing "hide and seek". Suddenly, upon our left, there broke out a heavy, stuttering roar. Another big, grey plane was ready to go. It's propellor whirred in a steel-blue circle. Now the machine is off. Gathering speed, it skips across the frozen ground. Now and then it takes light, graceful leaps into the air. Now it glides up at an angle -- and doesn't come down. Another 5 minutes, and it was a vague, white "T" in the sky, off toward the West horizon.

My friend turned to me. "Craig made a pretty take-off, didn't he?" "Should make Drake by sundown -- if a storm doesn't come up and force him down, as it did last time".

"He'll find it fair all the way", I said. "No storms today, Dave."

"How do you know?" my friend asked, surprised. "It's 500 miles to Drake. He might run into a cloud bank or a blizzard 200 miles out."

"Not today", said I. "At least, the chances are 10 to 1, he won't."

"Sure? -- it's fair here, all right", said Dave. "But how in Sam Hill can you tell whether it's good weather in Drake -- and in all the places between here and Drake?" Dave asked me.

"The Bureau's special weather service for commercial aviation takes care of that", I replied. We still had 6 minutes before the mail plane was due. So we found a couple of boxes and sat down.

C.W.M.

"First", said I, "I'd better tell you something about the 12 mail routes. Really, there are 11 now operating, but the Philadelphia-Washington-Norfolk mail planes will resume operations soon. Now let's count off the other 11 air routes now in operation: New York to San Francisco, through important cities along the line, that's one, -- New York to Boston (through Hartford), -- Atlanta to Miami (by way of Jacksonville and Tampa), -- Detroit to Grand Rapids (through Lansing), -- Chicago to St. Louis (by way of Springfield an Peoria), -- Chicago to Dallas (through Moline, Rock Island, Davenport, St. Joseph, Kansas City, Wichita, Oklahoma City, Dallas, and Ft. Worth), -- Chicago to Minneapolis and St. Paul (through Milwaukee and La Crosse), -- Cheyenne to Pueblo (through Denver), -- Salt Lake City to Pasco (Washington), (through Boise), -- Salt Lake City to Los Angeles (through Las Vegas), and Seattle to Los Angeles (through Portland, Medford, Sacramento, San Francisco, and Fresno). That's 11, isn't it?"

"Have you ever stopped to think what it means to get a letter stamped air mail? For that 8 cents per-ounce-per zone, postage, you buy courage. Believe me, it takes skill and courage to carry the mail through the air. Courage as great as the boys who carried the mail on ponies through Indian Country in the early days, had. On a day like this: - bright sunshine, - a blue sky overhead, it's nice going. It's the blizzards, high winds and bad storms that try the aviators mettle. Yet the mail must go,fair or foul. Many of Uncle Sam's "postmen of the air" fly through the inky blackness of night and often times under the most hazardous and unpleasant weather conditions.

"Pilots pay the closest attention to visibility and what they call the 'ceiling', that is, the highest altitude before they reach the clouds. For instance, take Craig who just put off. He knew what the weather is like around here just as well as you do. He looked pretty confident, didn't he? Well, the weather reports he got this morning, before he took off, helped to make him confident. They informed him that the visibility is good today, that there'll be practically no cloud hazard, and that only a slight wind is blowing. Airmen pay special heed to the height of low clouds. They're interested in wind velocity both on the surface and in the upper stratus of air. They don't pay so much attention to rainfall -- unless the clouds are low and heavy. Snow fall is of much importance to them because it may increase the load of the plane and thus cause accidents. Of course, the aviator taking a short hop isn't so particular about weather conditions. But when a chap's going on a long cross-country flight he wants to know as much as possible about weather conditions all along the "road". Sometimes it means life and death to him.

Dave broke in. "As you say, it's easy to see what the weather is here -- but how do you know what it's like 1000 or 5000 feet in the air -- or between here and a city 500 or 600 miles away? That's what I'd want to know if I were flying with valuable mail."

"Naturally", I answered. "And that's just where the Weather Bureau's new meteoriolgical service for commercial aviation steps in. About a year ago, Congress passed what is known as 'The Air Commerce Act of 1926'. The

purpose of this Act is 'to encourage and regulate the use of aircraft in commerce'. The service is new and not completely under way even yet. But already, it's giving 'weather reports, forecasts, warnings, and advices' of great value in 'promoting the safety and efficiency of the air navigation in the United States and above the high seas'. The work of the service really consists of observing, measuring, and investigating conditions of the atmosphere -- advising upon the suitability of proposed air routes as regards their meteorological conditions -- and establishing and operating weather offices and stations.

"That's a bit highbrow for me", said Dave.

"Well, I'll say the thing more simply, then", I answered. "A lot has been said about what should be done to protect the airways and aircraft. This new service gets down to business and actually does things. For example, it makes daily reports of the condition of both the surface and upper air. It makes short-range forecasts giving the outlook for from 1 to 5 or 6 hours in advance. The length of the period depends on how long a flight is going to last. And then it forecasts the weather for the next 12 to 24 hours. Now there are 36 stations in the United States that make daily observations of upper air conditions. These are made with the aid of balloons and other equipment and are especially valuable to aviators. In addition to these, the regular weather offices throughout the country -- over 200 of them -- make daily observations and records of the surface weather conditions. These are also used by airmen. A number of both classes of stations are located on established air routes. Practically all of these stations make two observations a day. A few make only one observation".

"What do you mean by OBSERVATION?" asked Dave at this point.

"Well", said I, "We mean an investigation of the condition of the air, - the weather, - really. Our men find out the speed and direction of the wind -- the temperature -- the precipitation (which is rain, sleet, or snow fall) -- the kind and the height of clouds in the sky -- visibility (or how far and how well you can see) -- fog, haze or smoke in the air -- thunderstorms -- squalls -- blizzards -- vapor, etc. These conditions are noted at about the same time each day, -- generally early in the morning, - by all the stations. Each station then telegraphs the conditions to other stations. All this information shown on weather maps makes it possible for an airman to read at a glance the air conditions he is apt to meet on his flight -- whether it is a long or a short one. Gives him a bird's eye view of the air and the weather -- see? As I said before, most of the stations make these observations twice a day".

"Can these forecasts always be trusted?" Dave asked.

"You can always trust that they are made on the basis of the best knowledg of expert weathermen", I replied. On the whole, weather forecasts made by Bureau offices are about 80 to 90 per cent verified. Our responsibility is over when we make the best observations we can and then release them to

the public. The air pilots get our observations in the morning around 9 o'clock, say. It is not our duty as weather men to advise them whether they should fly or not on a particular day. It is our duty to let them know what the air condition will be here, and where they are going".

"Well", said Dave, "That seems to be a mighty big assignment in itself".

"It is indeed", said I. "But here comes our mail plane. I'd know that plane's song in a thousand. Guess I'll have to finish telling you how we make the observations some other time. There's a lot more to say".

And then we went down to meet the pilot of the big mail plane as he landed.

And so, good night.

* * * * *

ANNOUNCEMENT: This concludes our first talk on the new commercial aviation weather service. The talk will be continued some night soon.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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PROGRAM Chats by the Weather Man. RELEASE Wed., Jan. 19

ANNOUNCEMENT: Station_____, broadcasting the regular Wednesday evening Chats by the Weather Man, released by the U.S.Department of Agriculture. The Weather Man is going to tell his radio audience about some of the lesser known services of that widespread organization, the Weather Bureau.

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We have been asked to tell you folks out there about some of the unusual things the Weather Bureau does which every Tom, Dick, and Harry do not know much about.

You people are familiar, I take it, with the daily forecast work of the Bureau. At least you give us enough welcome phone calls to make us feel that you are familiar with that work. We are now accustomed to advising Mrs. Smith to call off her coasting party because it's going to rain. We have even been asked if it would be safe to take the baby out for an airing. Oh, the daily forecast work is known to every one.

But do you know that the Bureau is cooperating with the Nebraska State Agricultural College to measure wind velocities over long periods in that State, in order to find out if it would be practical for farmers to store their batteries by generators driven by windmills?

There's more to it than just that, of course. So I'll tell you about this windmill proposition first -- then go on and mention a few other Bureau services that aren't commonly known.

The day seems not far distant when hundreds of rural homes will have wind-power plants to generate electricity to light those homes and to do much of the farmers' work. But wind-driven electrical generators haven't come into general use on farms because of the feeling that the wind can't be depended upon to blow steadily enough and often enough to drive these generators. To meet a growing demand for an economical and efficient wind-driven electrical generator, scientists of the Weather Bureau and the Nebraska Agricultural College have made a study of wind velocity at Lincoln, Nebraska, for a 10-year period to find out how much of the time the wind is too light to drive a generator. They have found that a minimum wind velocity of 10 miles an hour is necessary to charge batteries. But you don't have to charge batteries every day. So the wind need not blow at that rate every day. On the average, 5-hours' charging every 2 or 3 days is enough to keep the batteries well charged.

Farmers naturally use more electricity to light their homes in the winter, when the nights are long and some of the days are a bit muggy. Consequently, batteries require more frequent charging at such times. The scientists have discovered that in some sections the wind blows 10 miles an hour, or more, often enough in the winter to keep the batteries in good condition.

That's an interesting Weather Bureau activity.

Have you ever seen a snow chart? It is a blank map of the United States on which specialists in the Weather Bureau plot the snow fall. These charts are gotten out every week during the snowy months, in other words, from early in December to late in March.

Look at this map and you can tell at a glance where in the United States the snowfall is heaviest -- where it is lightest -- and where there's no snow at all. Areas having some snowfall are shaded in red. A recent map showed that the depth of snow over the United States varied from none in some parts of the South, along the Pacific Coast, and even in some sections of South Dakota and Nebraska -- to 79 inches in the mountains of Washington State. Many uses are made of the snow charts. These maps also show the thickness of ice on rivers and harbors, and this information is of much economical value to harvesters of ice, those engaged in river navigation, etc., but this is another story.

A man would think that not much can be done to regulate the flow of great rivers. But it's possible to determine a lot about <u>how much water there'll be</u> in great rivers from year to year. The men who operate the dams and locks along the Ohio River, for instance, are interested in knowing about the rise and fall of that River. Without some such knowledge, the operation of the locks and dams is conducted with great difficulty and sometimes with great loss. Operators of electric power plants along the rivers also want to know how high the water will be in different years and during different seasons in the same year. If a man were planning to build a power house along some stream, he'd naturally want to know if he could count on that stream developing enough current to run his generators.

Well, the quantity of water in a river depends, to a very large extent, upon the quantity of rainfall in the section of the country through which the stream flows. For the purpose of aiding navigation and hydroelectric developments along certain rivers, the Weather Bureau conducts special water-supply investigations. One of the most important of these is carried on in or near the watersheds of the Kentucky and Ohio rivers. Weather men measure the annual rainfall and make special surveys which prove mighty valuable to a large number of people living in the territories served by the two streams.

Of course the Bureau also conducts special river flood services, but they'll be considered later on.

It's history now, but the Weather Bureau cooperated with Norwegian meteorologists to furnish Captain Amundsen with special weather services on his Polar airplane flight. The services were broadcast by radio, written in code. This is but one example of the widespread service the Weather Bureau offers explorers making hazardous trips to the lonely places of the earth.

The Weather Bureau has enlisted the aid of captains of ships on the high seas in maintaining its unusual marine meteorological service. This work extends to the ends of the earth and is one of the most interesting of Bureau activities.

This service is based on cooperation of the highest form. In return for weather information sea captains furnish the Bureau, the Bureau supplies these mariners with forecasts and other weather information of great value to them. The Weather Bureau works hand in glove with the Hydrographic Office and the Office of Communications of the Navy Department. They Hydrographic Office publishes the so called Pilot Charts which picture the weather on the high seas from day to day. Every mariner is familiar with these Pilots' Charts.

The Bureau gets the observations from about 1,400 ships -- a real navy. The number of single observations received run into big figures. Many of the vessels that supply this information never visit American ports. They sail from all harbors of the world and supply the Weather Bureau with valuable information on the state of the ocean from one corner of the earth to another.

All this information is gathered together, charted, and supplied to ship captains. Radio -- the press -- and wireless contribute to the wide distribution of this wreck-preventing information.

We've already had a lot to say about how the farmers are using the weather forecasts. Here are some extracts from a letter received by a weather man in New York state which show that the agriculturists are using harvest weather predictions. The State county agent wrote the letter:

"We recently sent a questionnaire to the county agricultural agents in New York State regarding a few of the outstanding projects carried out this year", the county agent writes. "I included this question in the questionnaire: Number of farmers in your county using harvest weather forecasts service in 1926? Forty five of our 55 county agricultural agents reported use having been made of the service in their counties. The total number of farmers using the service is 24,501. This is very gratifying and I think it clearly indicates the way in which the service has been accepted and is being used by New York State farmers....

"I do not believe we would be stating the value too high if we should say that every farmer that used the service saved and average of $5 as a result of it. We know that in a great many instances it was many times this amount. However, if we use this figure, the harvest weather forecast service alone was worth $122,505 to the farmers of New York State last year, or an average of $2,722 for the 45 counties reporting".

The harvest weather service is only one of the several the Bureau extends to the farmers of the United States.

Thank you for your attention, and good night.

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ANNOUNCEMENT: That concludes the Weather Man's chat for this evening. He will go on the air again next Wednesday evening.

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
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U.S. Department of Agriculture

PROGRAM Chats by the Weather Man. RELEASE Wed. Jan. 26.

ANNOUNCEMENT: Frost, hail, snow, rain, and cold weather insurance is the subject of the Weather Man's Chat this evening. The talk is released as a regular Wednesday evening feature of the radio service of the U. S. Department of Agriculture, through Station_____.

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The farmers of Fairfields County were planning a Farmers' Week to be held about the middle of January. Now the middle of January is generally unsettled in this section of the country and the farmers were losing a lot of sleep for fear that a blizzard or a prolonged cold spell would come along and break up the festivities. Bad weather might also make it impossible to ship stock for the exhibits. And the women folks wanted to know about how many men they'd have to count on lining up before the lunch they planned to serve, hot from the oven and kettle, at noon.

Well, as I said, the committees in charge of the Week were doing some tall worrying. It was going to take a pot of money to put the affair over. Serious business, whichever way you looked at it.

One day the chairman of the exhibits committee met me in front of the town hall. After the preliminaries were over, he said slowly,

"Wish I could be sure that we're going to have good weather about January 17th to 22nd".

"Do you want me to tell you whether it will snow or reach zero on the 17th of January, Jim?" I asked drily.

"I certainly do", Jim said quickly.

"Say, what do you expect of us", I asked, pretending surprise. "Now I can look up the weather records for this section for the past 20 years and then tell you what kind of weather we've had on January 17th. In fact, I've done so, and the chances are not so bad for a good day -- and a good week to follow. But I certainly am unable to tell you with any degree of certainty. You can insure yourselves, however, against loss of money in case the weather does prevent you from carrying out your scheduled plans."

"Didn't know that", said Jim.

"You can insure almost anything, today", I replied. "They say that Lloyd's of London will insure the brush of the artist -- the brain of the thinker --

the arm of the ball player -- the fist of the prize fighter -- or the toe of a dancer".

Jim was plainly surprised. "Is that so?" he asked.

"Yes", said I, "and here's something else. "You know that they can foretell an eclipse some time in advance of the day it occurs. Scientists travel great distances to see an eclipse. That's a lot of expense and trouble. And it would be awkward if it was cloudy on eclipse day. So the scientists sometimes insure themselves against inability to view the eclipse because of clouds in the sky".

In the old days the fruit grower just took the weather as it came. If a frost came late and froze the blossoms on his fruit trees-- or if it came early and destroyed a valuable truck garden crop -- he just gritted his teeth and blamed it on the blamed country he was living in and said a farmer has a hard life. Nowadays, the modern fruit grower insures himself against frost damage with smudge pots in his orchard -- or by actually taking out frost insurance. Take hail. Hail insurance is the oldest kind of distinctly weather insurance in the United States. It is written in large amounts in those states where hail damage is likely. The total hail insurance premiums paid in the United States in 1924 amounted to about forty million dollars.

"Windstorm and tornado insurance is another promising side line of fire-insurance companies. Annual premiums paid out nowadays amount to something like thirty million dollars in this Nation alone. Recent damaging tornados have boosted the popularity of tornado insurance, as they naturally would.

"Then there's rain insurance. It differs from other forms of weather insurance in that it does not cover property damage. Rain insurance is designed mainly to cover events -- ball games, prize fights -- open-air concerts -- which depend on public patronage for their success. Some of the policies cover not more than 3 hours -- long enough, however, for a man to make a lot of money in a big public affair. Fair managers and retail stores advertising special sales often take out rain insurance.

"Damage by lightning is generally covered in fire insurance, but there are certain freak types of insurance that might interest you, Jim. A motion picture company taking snow scenes, once took out insurance to protect itself in case it did not snow.

"How do they set the rates?" Jim asked.

"Rates for all these forms of insurance are originally based on the records of the Weather Bureau", I replied. "You see, the Bureau has records of the weather, which go back as far as 50 years. In connection with rain insurance, the amounts and frequency of rainfall during many years -- and in about 200 cities -- have been studied by men who are expert in reading the stories figures tell. Adjustments and payments of all kinds are made in conformity with the facts furnished by the Weather Bureau".

"Could I insure my own crops?" asked Jim.

"Yes, if your judgment told you it was a good investment to do so. Modern, scientific farming enables the farmer to eliminate many of the hazards. It's likely that crop insurance will go still further in giving you still more peace of mind. Even today, the study of climatic factors in a certain area makes it possible for a farmer to select regions where certain crops will grow best. That study also helps him to decide whether to insure his crops by smudge pots or commercial policies, it seems to me.

"During recent years, the Department of Agriculture has made wide studies of this matter of crop insurance. So have a number of foreign countries. In fact, some countries have gone so far as to put direct governmental supervision over insurance companies that insure crops against weather damage".

"Well,"said Jim Then, "it seems to me that man has found that he can protect himself against the mysteries of the forces of nature -- even if he can't solve them."

That was all some time ago and I don't know whether the farmers in this particular case insured their annual Farmers' Week against bad weather or not. I certainly hope nothing happened to make it anything but a success. I do think Jum was impressed with the possibilities of weather insurance, though.

Now I suppose my time is up and I'd better bid you good night.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM Chats by the Weather Man. RELEASE Wed. Feb. 2.

ANNOUNCEMENT: What makes the sky blue? What are snow, hail, fog, rain, thunder, lightning? The Weather Man is going to answer some of these questions for you tonight in his regular Wednesday evening Chat released by the U.S.Department of Agriculture through Station_____.

---ooOoo---

"Dad-dy, -- what makes the sky blue?"

It was Bobby, my young son, speaking.

Some question, eh! What makes the sky blue? Now if Bobby had asked me the price of coal -- or how many home runs Babe Ruth knocked last season -- or who the President of Nicaragua is, I could have answered him without trouble.

"Don't bother your father, Bobby", cautioned my wife. "Can't you see he's reading the newspaper?"

"Yeah", said I. "Your father is busy now, son. Ask me that question again some day."

Then Bobby spoke up again. "Daddy -- why does the sky turn red when the sun goes down?"

"Sometimes it doesn't", I told him, laying my paper aside. I knew I was in for a session as school teacher.

"Better try and give the boy a reasonable answer", advised Mother. "Not the kind you usually give me."

"Now what was it you wanted to know, son?" I asked. "Oh, yes. What makes the sky blue. That's not a hard question to ask, my boy, -- but it's a bit difficult to explain, briefly. We'll talk about the sky colors some other time.

"Then tell me, Daddy, what are clouds?" asked Bobby.

"Do you think you'll know if I tell you?" I asked. Bobby said yes. So I told him that our word cloud comes from the old Anglo-Saxon word, clud (pronounced clude) meaning a "mass of rock", or clod, which means a lump. The Anglo-Saxons had a word, wolcen, which they used for cloud. Well, of course, cloud means a mass of condensed water vapor floating in the air at some distance from the earth. My wife wanted to know the names of some of the common cloud forms, so I described three or four to her -- as I'm going to describe them for you.

A cirrus cloud is delicate and fibrous-looking. Sometimes a group of cirrus

clouds look a lot like feathers in the sky. They always are white and sometimes are arranged in belts or bands.

Nimbus clouds are rain clouds. A thick layer of dark clouds, without visible shape, and from which rain or snow continues to fall, is a layer of nimbus clouds.

Cumulus clouds are often called "wool-pack clouds". The top of a cumulus cloud is dome-shaped; its base is horizontal. When the sun is right, these clouds cast heavy shadows.

Then, said I, there are many combinations of these different forms. For instance, the cumulo-nimbus cloud is the thunder cloud from which rain is falling. A mass of cumulo-nimbus clouds rises in great mountains. From the base, local showers of rain often mixed with hail, always fall, or at least start falling. Sometimes in dry regions the rain is evaporated before it reaches the earth.

Bobby was listening in. My wife was interested too. "I imagine", she said, "that about the only difference between clouds and fog is that clouds are farther from the earth."

"That's about it", I told her. Then I went on to explain. "There is always some moisture in the air", I said. "But sometimes there's more than at other times. Thus we get different forms of precipitation, such as rain, snow, hail, fog, and dew. When air is cooled to a certain point, called the dew point, the invisible vapor in the air is condensed, or brought together in drops. It then makes fog or cloud from which rain or snow may fall. When warm air is sufficiently cooled condensation takes place, and the small water particles become visible, floating in the air. If this condensation takes place near the earth, it forms fog. If it's high in the air, we get clouds."

"What makes the rain fall?" my wife wanted to know.

"Well", said I, "raindrops are formed from cloud particles. These aren't all the same size. The big ones fall faster than the small ones. When the air is rising, the small drops are carried up faster than the large drops. For this reason, many collisions take place between drops. Whenever enough cloud particles, many thousands of them collide, they form into a diminutive rain drop. That means a tiny raindrop. As soon as these drops begin to fall at all rapidly, they soon reach the bottom of the cloud and then fall to the earth.

"Is snow frozen raindrops?" asked Bobby.

I told him No. If the condensation process is vigorous enough to cause precipitation when the temperature is below the freezing point, snowflakes, instead of raindrops, are formed. It's interesting to know that much of the rain that falls in winter time probably left the clouds as snow and melted during its fall to the earth. But even at that, we get enough of the beautiful snow crystal during an average winter to know pretty much what it looks like. Most American neighborhoods get some snow during the year. Some get more than 100 inches.

"Is hail snow?" asked my wife.

"No. There are 3 kinds of hail", I said in my most learned tone. "Each kind occurs at a different season of the year, and is formed in a different way. Winter hail which isn't hail at all but sleet, is really small, clear pellets of ice, about the size of raindrops. In fact they are frozen raindrops. Soft hail another kind that isn't hail , but graupel, consists of small, white pellets of what looks like compressed snow. It generally comes in very small quantities, during March and April. Once in a while we get this kind in the autumn. We never get hail in the summer time except during a thunderstorm. Summer hailstones are unusually large -- sometimes several inches in diameter -- and strange tales are told of summer hail stones that beat through windows and the roofs of houses. If you examine these hailstones, you'll find that they are made up of layer after layer of compacted snow and ice. Hail nearly always falls at the beginning of a shower and sometimes it comes in great quantities. There's a record of hail covering the ground one foot deep after one storm."

"What makes the thunder crash?" asked Bobby, when I had finished talking about hail.

"It's about your bedtime, son", said I. "So save that question for some other night and I'll tell you a story of the great god Thor, who threw his great hammer through the air and frightened his enemies. I'll tell you what makes the thunder roar, Bobby, and also what makes the lightning flash. So go to bed now, like a good boy, and I'll tell you some other time the old stories of the sun chariot and the rainbow and --- lots of other interesting things."

"Tomorrow night?" asked Bobby eagerly.

"No, next Wednesday", said I, "if you'll be a good boy."

---ooOoo---

ANNOUNCEMENT: Most folks are interested in the natural weather phenomena, but very few know what causes them. In later Chats, the Weather Man promises you brief, popular explanations of other wonders of the elements.

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

PROGRAM Chats by the Weather Man. RELEASE Wed. Feb. 9.

ANNOUNCEMENT: Station_____, broadcasting the regular Wednesday evening Chats by the Weather Man, released by the U. S. Department of Agriculture. Thunder and Lightning are the specialties for tonight. Just imagine you can hear that thunder roll.....

* * * * * * *

"What makes it thunder, Dad-dy?"

It was my small son, Bobby, speaking. Practicing his favorite indoor sport of asking questions. I knew the question was coming as we'd had one of those rare Winter thunder storms about sundown and it had left him with a flock of questions to ask. Then, too, he remembered my week-old promise to go into the matter of thunder and lightning at the first opportunity. Bob's a lad who misses few opportunities to ask questions. You folks out there know the kind I mean.

From the look on her face, I could see the Missus wouldn't be entirely deaf to my reply, either. She's as interested in the weather as in fire sales, so every time I make a weather talk for the boy, I speak for her too.

"Well-----", I began wisely, and took a couple minutes more to scrap the last spoonful of dessert from the dish. Stalling for time, you know. This "what makes it thunder" question isn't exactly an easy one to answer.

My wife finished her dessert -- folded her napkin neatly -- and waited.

Bobby had finished a second helping and was ready for action. He likes a bit of interesting conversation after his meals. So, "what makes it thunder?" he repeated.

"Daddy probably heard you the first time", Mother said. "Give him plenty of time. He doesn't think as fast as I do, you know".

"Ha! Ha!" I laughed. "Why don't you ask your mother what makes it thunder, son?" Then I decided to answer his question myself.

"You see", I began, "in order to understand why it thunders, you must first know why we get lightning. I'll really have to begin with lightning, then. You've noticed that thunder storms usually come when the weather is hot and sultry. Now and then we get those storms, however, even in the winter time. But not so often. So, when the air is hot and sultry -- and has been for several days -- the great blue vault of the sky becomes spotted here and there with great mountains of cloud. These are called summer cumuli and they're

snow-white on the sunlit sides and blue gray on the shady sides. If you watch these clouds closely during the sunny day, you'll find that one of these vast woolpack cloud masses grows faster than its neighbors and raises its great billowing top miles above the surface of the earth. Before long, rain begins to fall."

"At first there isn't much rain", Bobby broke in, "huh --- Daddy?"

"Yes", I answered him. "But when the rain starts falling, everything is changed. It's like a great circus that performs for us in the sky. It was all calm before --- but now everything is wild and strong and windy. The peaceful, beautiful summer cloud becomes a black, mad tempest.

"Have you noticed that as soon as the rain starts falling, the towering cloud reaches its greatest height? And have you noticed that the wind seems to pull out from this cloud a great curtain, thin and dark, that extends far ahead of the storm?"

"I have", said my wife.

"Well, that's the messenger of the thunder storm", said I. "It precedes the storm and its white color soon changes to darker as the black clouds roll up behind it. The sun is hidden. It is very hot. But the cloud shades the sun and makes it actually cooler than it would be otherwise. A great stillness hangs over the earth."

"You feel like something is going to happen and you don't know what", said Bobby.

"That's it", said I. "Then, if you'll look into the dense part of the big cloud, you'll see flashes of lightning tearing through. Then the faint rumble of thunder is heard. As the storm comes on, you feel a soft, cool breeze blowing directly into the coming shower. This soon passes and a strong, outblowing gale drives dust and leaves before it as the storm approaches. Big drops of rain patter on the leaves and tap-tap on the roof. Perhaps a little hail clatters down. Then the rain comes in driving sheets -- the lightning flashes -- the thunder roars. Soon the worst is over. Half an hour, perhaps, and it is done. The clouds grow thinner. The thunder echoes off into silence. The rain stops and the sun shines through the clouds onto a fresh, green earth. There's a refreshing, cool zest in the air. A rainbow arches a beautiful bridge over the horizon over which come the fairies of fair weather."

"But what makes this thunder?" my wife insisted.

"I see you must have it", I returned, "so here goes. As I told Bobby a minute ago, we must begin with the lightning. So here's the theory many scientists accept. I'll go slowly.

"To have a thunder storm in the first place, the air must be moist, humid. Next, this water must be got out of the air in the form of rain. That is done by forcing the air up to higher levels. Here's how that's done. In a thunder storm, there's a powerful uprush of air in the midst of the cumulus

cloud I mentioned a short while ago. This uprush of air is caused by uneven heating. Warm air expands and grows lighter -- then rises. See? It's usually very warm before a thunderstorm. Now, the heated soil heats the air next to it. This air expands with the heating -- becomes lighter -- and rises. The lighter air is thus pushed to high levels. Any slight breeze causes a great disturbance in the different air layers. In fact, a great stirring goes on as the warm and cold air change places. This is the force behind a thunderstorm.

"But this warm air, rising, has to exert a great force against the colder air above it. This force is equal to about 8 to 14 pounds per square inch. The expansion of the warmer air against the colder, requires a lot of work. As the work is done, the warmer air grows colder. And so the warm air soon cools to what we call its dew-point. At that point, the water in the air no longer remains as vapor, but condenses and becomes raindrops.

"Now scientists say that as the water vapor condenses into rain, the water loses its heat of vaporization. Bobby won't understand that. We'll have to explain it some other time. So let it go for the present. Now, all the inner portion of the great thunder cloud is warmer than the air at the same level on the outside. This makes a sort of heated chimney. And up through this chimney, the air rushes with great speed and force.

"Then rain forms in the towering cloud and cools the lower air through which it falls. This cooled air drops to lower and lower levels. Soon it falls to the earth as the dust-raising gale I mentioned before. The cool air that comes down with the rain, rushes forward on the ground as a wind, and stays down. The warmer air that is driven up, becomes the forward portion of the storm, furnishes the rain, and stays up.

"Now we come to the lightning. I told you that the cloud is a great chimney through which great currents of air rush upward. I also said that rain is formed in this cloud, didn't I? As these small raindrops are blown hither and thither in the cloud, they continually meet other drops, join, and become larger. These drops are broken up by collisions and by the wind, and at each breaking, small drops are torn off. These tiny drops are blown to higher levels. It is known that this breaking up of rain drops electrifies them. The large drops are charged positively, and the smaller drops, negatively. The big drops, with their positive charges, gather together because they are heavy, in the lower part of the cloud. The tiny, negatively charged drops, are blown to the upper part of the cloud as spray. As the charges grow, a great force tends to bring the opposite charges together. This tendency to discharge -- for the two opposite charges to unite -- grows greater and greater until finally we get a spark of lightning. This flash passes, usually, between the upper and lower portions of the cloud. The flash sometimes passes to the earth. Lightning usually lasts only a fraction of a second. Sometimes it's flickering, because there are a number of discharges following each other along the same path. The flow of electrical current is short, but very powerful -- sometimes tens of thousands of ampers. Its path through the air is often several miles long, but very slender. Some scientists believe that even the greater flashes are no thicker than a lead pencil.

"The discharge heats the air suddenly to a very high temperature. It also smashes the air atoms to pieces. This causes a great explosion -- or an outblow of air -- all along the path of the lightning flash. This explosion sets the sound waves we call thunder in motion".

My wife had been listening carefully and with interest. But everything had been so quiet -- while I was talking -- that I was suspicious. Looking over to Bobby, I saw he was fast asleep.

"He went to sleep when you got talking about hot and cold air. He could not understand that, and so took the shortest way out," said my wife sweetly.

"Of course the poor little chap couldn't understand it", said I. "He's too young yet for that. Guess you'd better put him to bed, anyhow. He's had an exciting day".

And, as mother prepared to take Bobby upstairs to his room, I found the evening paper and prepared to give my full attention to the day's tidings.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

Reserve

PROGRAM Chats by the Weather Man. RELEASE Wed. Feb. 16.

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(NOT FOR PUBLICATION)

ANNOUNCEMENT: Floods -- river stages -- snowfall service: -- That's what the Weather Man is going to chat about this evening. The U. S. Department of Agriculture releases the Weather Man's Chat every Wednesday, through Station_____.

---ooOoo---

"There's a story in this letter", the Weather Man told me, as he took an official-appearing paper from his desk. "A story of a service that's taken for granted in the Bureau's River and Flood Service. The kind of work the men in the Service do quite often. This letter's from the Nashville Gas and Heating Company. You know they had a flood down in Nashville not so long ago."

"What does the letter say?" I asked.

"Let's read part of it", he answered. "It says here:

"I want to take this opportunity to thank you and your organization for the helpful and needed assistance you rendered us, almost hourly, during the period of rising waters which wrought such havoc and destruction in Nashville recently. I give credit to your warnings the fact that we were able to maintain our gas service without interruption.

"While all of our large high pressure mains, leaving our plant, were covered with from 2 to 14 feet of water, your advance warnings enabled us....to supply the city with gas continuously, and without anyone being aware of the fact that the supply might have been cut off at any moment....Our loss therefore was very small but might have been of a most disastrous nature, if we had not been constantly advised by your Department...."

"Sounds pretty good to me", I said, "but it must be rather an unusual case",

"Not at all", the Weather Man replied, folding the letter, "just the usual thing during flood season. It isn't a case of complimenting ourselves. One of the main duties of the Weather Bureau is to maintain a river and flood forecast service which covers practically the whole United States. You probably thought that the Bureau's activities are confined to forecasting the weather from day to day. That is only one important part of the work. The large River and Flood Service, covering the ice reporting and snowfall services, does a day by day work for industry, farmers, and the general population in the localities involved, that is mighty important."

"Let's hear about it", I said.

"Let me begin with an interesting case", The Weather Man settled himself in his chair. Then he pointed to the large map at his right. "See that map.

Notice all the colored pins on it? Those pins show our activities at a glance."

I turned and looked at the map of the United States. It was literally studded with pins with red, green, pink, white, buff and other-colored heads.

"Those pins show the extent of our flood, snowfall, and ice services", he continued. "Notice the sweep of the pins east of the Mississippi River? That indicates the flood areas. We divide the United States into 66 districts. There are about 1,000 stations scattered over the Nation. We have meteorologists at each district station, and there are observers of one kind or another at all the stations. The districts covering the Ohio, Cumberland, and Tennessee rivers -- and the Mississippi river -- are among the most important. Now let's take a particular case.

"You'll remember the flood at the lower end of the Mississippi about February 1st, no doubt. Well, Weather Bureau men were able to forecast that flood from 10 days to 3 or 4 weeks ahead of time. They were able to forecast the time of the flood, and the extent of it as well.

"Let's trace that flood down. Of course, up in the smaller streams and rivers -- in the more hilly country where the water flows faster, and where numbers of small streams contribute to the quantity of water in the main stream -- we can't predict so far ahead. There was a damaging flood last December along the Tennessee and Cumberland rivers. About 9,000 people were left homeless for the time being and the property damage amounted to about 3 million dollars. That same flood was passing Vicksburg, Mississippi, January 29. We predicted it several days ahead. The Pittsburg flood, of January 22nd, passed Louisville about January 29th -- and passed down the river, moderating as it went. About the best we can do at Pittsburgh is to forecast floods about 18 hours to a day in advance. As the rising waters go along down the river, it becomes possible for weather men to predict the coming flood farther and farther ahead and with more and more accuracy. A forecast of high water made 18 to 24 hours ahead at Pittsburg is a good average, but the same flood may be predicted with accuracy from 5 to 6 days ahead at Cincinnati. Our men forecast exactly the height of the high water at Cincinnati January 27th, which totaled 59 feet. It is an ordinary occurrence to forecast high water from 2 to 4 weeks ahead at New Orleans. You see, the rising waters pass on down the river, and as they move along, our observers measure and observe the movement and telegraph ahead."

The Weather Man paused a moment and looked out of the window at the falling rain. "This is just about the time of year when our flood and river service is kept busiest", he declared. "Down South, you know, thousands of cattle are pastured in the swamp lands where they can feed throughout the year unless they're driven out by floods. Floods in that section are rather frequent. So we issue flood warnings often. The warnings enable the farmer to drive his cattle to higher ground and to provide food for them while the high water covers the pastures. Some years ago, before we organized the flood service, a great many cattle were drowned every year. Now losses of this kind are rare and very small." Frequently in the late Summer or early Fall, some crops are left standing in the low lands. Flood warnings, issued some days ahead, sent the farmers to the fields to harvest their endangered crops."

"How does the river and flood service help the water traffic along the rivers? I wanted to know.

"In many ways. The loading of boats depends on the stage of the water in navigable rivers, you see. Low water means light cargoes and delay, -- with resulting decreases in receipts, and increases in expense. The warnings are followed by freight companies and manufacturing industries in loading their river barges so that loss from either low or high water to freight is seldom and light."

"You mentioned the snowfall service, I believe", I suggested.

"Yes. That is a definite branch of the weather service", replied the Weather Man. "We have men in the field, especially in the mountain regions of the West, who measure the snowfall in the mountains and translate it into its water equivalent. This is done in the late Winter and early Spring. Farmers adjust their crop plantings according to the quantity of irrigation water the snow forecasts tell them they will have during the growing season. We also measure the ice depth and the kind of ice on rivers for the aid of shipping interests and power companies operating along the streams."

"How much does this service cost the taxpayers of the country a year?" I asked as I prepared to take my leave.

"The total cost of the operation of the river and flood service per year is less than 2 mills for each person in the United States", replied the Weather Man, "but the farmers, business, and the people as a whole are saved millions of dollars loss as well as the loss of thousands of lives and shattered hopes."

---ooOoo---

ANNOUNCEMENT: You have been listening to the Weather Man's regular Wednesday evening chat from Station_____. This is one of our daily features from the U. S. Department of Agriculture.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

PROGRAM CHATS BY THE WEATHER MAN Wed. Feb. 23.
RELEASE

NOT FOR PUBLICATION

ANNOUNCEMENT: Fifty seven varieties of weather information in the Weather Man&s Chat this evening. All of it comes direct from the Weather Bureau. The Chat is released every Wednesday by the United States Department of Agriculture through Station_____.

* * * * * *

('Phone rings).

"Hel-LO. Yes.-- Weather Man speaking. You say you want to know when it rained last? On the twenty first. You're welcome. Good day".

The Weather Man hung up the receiver, and turned to us. My friend, Bourne, and I had dropped in on him at his office to pass the time of day. We found the meteorologist in one of his less busy hours.

He motioned to the 'phone on his desk. "That's a funny thing", he declared.

"Looks about normal to me," said Bourne smiling. "About like my telephone."

"Oh, I don't mean the telephone," our friend replied. "I mean the short conversation I just had".

"What about it"? I asked.

"Man wanted to know when it rained last. I told him, 'on the twenty first'. Then he explained that he'd lost his umbrella the last time it rained. Said he thought if he could remember when we had our last rain storm, perhaps he could remember where he left his shower stick. I told him. He thanked me and hung up."

"Get many 'phone calls like that one?" Bourne wanted to know.

"Not many exactly like that one", the Weather Man answered, "but you'd be surprised at the heavy business we do in telephone questions and answers. Take the case of that damaging flood down in Tennessee about February 3rd. I'll wager that our men down there worked 18 or 20 hours a day during the high water period. We've known as many as 2,500 'phone calls to come in one day. Sometimes there are 200 an hour. They usually put on special operators in such emergencies, but then the people all want to talk to the meteorologist direct. Seems like no one else will quite do.

"A man will call up during a flood, or a threatened flood. 'How much water are we going to get?" he'll ask. 'Fifty feet', we'll answer. 'I can only stand 45 feet', he'll reply and hang up. Then he'll make a grand rush to clear his property off the threatened land, or get his family and lives stock to safety".

"But how do you know how much water you'll actually get?" I asked.

"Through science and experience", said the Weather man. "After you've been in the highly important and thrilling game of flood and river stage forecasting for 10 to 40 years in a certain district, you'll know that district and all its ways. Then you'll have the daily reports from scores of other trained observers to help you out. Our men often forecast the exact height off high water at a particular place several hours before it begins to rise and in some cases, like the lower Mississippi, as much as two weeks ahead.

"Don't you meteorologists ever make mistakes?" Bourne asked.

"Sure we make mistakes. You can't be right all the time. But we do the best we can -- and call it all in the game when occasionally things come up to overturn our forecasts".

The Weather Man paused at this point and Bourne broke in with a question.

"Arn't farmers and sailors weather-wise on the whole?" he asked. I've heard that their methods of predicting the weather are considered pretty sound".

"Farmers and sailors <u>are</u> weather wise", he replied. "By reason of their occupations which depend so much on the weather, they soon come to know the weather's moods and habits. They read the signals in the sky all right, but a lot of the signs people believe in aren't any good. For instance, birds and animals know nothing about weather forecasting, in spite of many people's faith in their accuracy and prophetic knowledge. The position of the moon has no bearing on the weather either, although a circle around themoonmay be a good indication of a storm within 24 hours. The appearance of the sky at sundown is a pretty fair indication of what the weather will be the coming day, but itdoesn't always tell the truth. Of course the clouds in the sky are very good weather signs. With a perfectly cloudless sky, a storm ordinarily isn't likely to occur in the locality for 24 hours, but there are exceptions to this rule as well. Learn to read the clouds. There are rain clouds, wind clouds, and fair weather clouds".

"Doesn't the direction of the wind have a lot to do with it?" I asked. "A wind from the West suits everyone best, doesn't it?"

"Not always", our friend told us. "As a rule, the direction of the wind has no importance in making 48-hour weather forecasts. But for day-by-day forecasts of the weather, the direction of the wind is of the highest importance.

As a rule, winds blowing from North to South, by way of the East, are rain winds. Ordinarily winds coming from the westerly side are fair weather winds. Notice I say, as a rule, and ordinarily. There are exceptions. The changing winds in any locality are shown on the weather map as a storm comes on and passes by".

"What simple rules could you give a farmer so that he could forecast his own weather with fair accuracy"? questioned Bourne.

"The farmer should learn the significance of local signs in the heavens such as clouds and halos, the wind direction and speed. One may often tell something about the coming weather by one's own feelings, especially as regards rain. You somehow feel it in the air. We also feel a coming thunderstorm. Drier air is an almost certain indication of fair weather. When a storm approaches the barometric pressure falls and it rises as the storm passes on. It's quite easy to learn to read this instrument. Of course, these signs are not 100 per cent accurate. The old saw, 'All signs fail in dry weather', is more truth than poetry."

"Why don't we have as much snow as we had 25 years ago?" was my next question.

"Aha!" said the Weather Man, "I thought that question would come out sooner or later. On the average, we do have as much snow as we used to. Winters with light snow just happen. So do winters with heavy snow. The Northeast portion of the United States has had heavy snow winters for several years hand running. Nine years ago, Chicago and the Middle West had the snowiest winter on record in 50 years. In January of 1918, snow was piled up 15 feet high in the streets."

"I guess we just don't notice winters like we used to", Bourne put in. "But isn't a lot of snow and cold weather healthy?"

"That's another belief that has been with us a long time", our friend replied. "I'm not sure about the answer, either. Experts on weather and its relations to disease tell us that there are certain curative properties in the air of different localities. Nearness and distance from large bodies of water, -- altitude, -- sunshine, -- moisture in the air all help to make the air healthy or unhealthy. A climate should be well suited to out-door life. There are two kinds of climates: Negative and positive. Positive climates produce a tonic effect in people. Both sea and mountain air have this tonic effect. But sea air is mostly a sedative in its effect while mountain air is stimulating. Certain places are famous as health resorts and there's no question about their great value".

At this point in our talk, the 'phone rang again. The Weather Man asked to be excused while he answered it. So, Bourne and I, knowing we had stayed long enough, made our farewells and left the Weather Man to his telephone questioners.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

CHATS BY THE WEATHER MAN. E. Wed. March 2.

PROGRAM..... RELEASE.....

(NOT FOR PUBLICATION)

ANNOUNCEMENT: The Weather Man is going to talk about protecting orchards from frost, in his weekly Chat this evening. The Chat is released every Wednesday by the United States Department of Agriculture through Station-___.

---ooOoo---

"You know, Preston, we're doing a lot about the weather these days. Mark Twain -- who said that 'everybody talks about the weather, but nobody does anything about it' -- should come to life today, he'd be surprised".

It was the Weather Man speaking. We were on a fast train, riding through the fruit belt. I was an interested listener.

"Yes sir -- Mark Twain would certainly be surprised....."

"How come?" I asked.

"Why, don't you see? he exclaimed. "In the old days, the prosperity of the fruit growers depended almost entirely on the weather. Good growing weather -- no late frosts -- generally meant good crops. But a frost could come down in the night and destroy the crop and the orchardists' hopes at the same time".

"But how's that changed lately?" I wanted to know. "We still get frosts, don't we? And I don't know as I've heard that frozen crops have been entirely eliminated in the last few years".

"Oh, I don't mean that man in his wisdom has eliminated frosts, Preston", drawled the Weather Man. "But He's learned that old Jack Frost isn't the invincible, blustering fellow he once was. Nowadays we let him come -- but get ready for him with oil burners in the orchard. Heating the orchard a few degrees is generally enough to get old Jack down and hogtie him".

"That's all very well", said I. "But how do you know when he's coming so as to get the burners ready for his unwelcome visit?"

"Easy. That's where the Weather Bureau steps in. Last winter,

in one very important fruit-growing district the weather man made 48 distinct low temperature forecasts. Seventy nine per cent of these forecasts were correct within 1 degree. Ninety eight per cent were correct to within 2 degrees. The greatest miss during the entire winter was only 2 and seven-tenths degrees. When temperatures are expected to fall as low as 32 degrees in any district during the night, a forecast is made and spread widely through the district. This forecast contains a definite statement, sometimes to tenths of a degree, as to just how low the temperature is expected to fall. There are 8 trained Weather Bureau men assigned to this frost work and forecasts are remarkably accurate.

"You know, Preston, there are certain warm-climate fruits, such as oranges, lemons, olives, dates, and figs. Then there are fruits, such as the apple, cherry, currant, gooseberry, and cranberry that thrive in fairly cool regions. Because certain fruits thrive best in certain regions, farmers and fruit growers have come to learn the limitations of those fruits and operated accordingly. Citrus fruits originated in the Tropics and for that reason, citrus culture in the United States is limited to certain sections such as Florida and California. But even there, they often need artificial protection against late frosts. The fruit industry is a huge business and can afford to spend large sums of money for this protection".

"How do they protect the fruit from the frost?" was my next question.

"In the early days, they built log fires in the orchard. Coke burners were used later. Orchardists burned coal amid the trees around 1896. By 1910, open cans or pots, holding 1 or 2 gallons of oil, were introduced. Since then, that practice has become more and more popular. The destructive freeze of 1913 hastened the use of heaters in practically all of the big citrus orchards. The growers decided that, to maintain the industry on a paying basis, protection of the trees would have to be practiced. At first they thought the best protection was gained by covering the orchard with a dense blanket of smoke. They soon found out, however, that heat is what is needed -- not smoke. Nowadays they use a well-built heater, with a capacity of 9 gallons of oil, well-fitting draft regulators, and improved stacks. These reduce the amount of smoke to a minimun. The heaters cost about $3 apiece. About 50 heaters are needed per acre of orchard."

"Why is it that fruit needs protection, when vegetables and other crops seem to get along without it fairly well? I asked.

"Well", answered the Weather Man, "some vegetables and crops do need protection in many parts of the country. But the weather risk in fruit growing in the United States is much greater than for most crops, mainly because of low winter temperatures which damage twigs and buds, or spring frosts which kill advanced buds or blossoms. Sometimes short periods of warm weather in the winter start the buds developing. Later

cold weather kills them if they're not protected. Then, too, vegetables and similar crops are annuals planted every year. A farmer can plant his seed when danger from frost is past. But the fruit trees last many years and are there in the orchard, at the mercy of sudden freezes."

"I see", said I. "Now tell me how they operate the heaters on a large scale."

"Well, first of all orchard heating, must be systematically done, to be successful", said he. "There must be plenty of equipment and a good reserve of fuel oil. The really big orchardists build central tanks in their orchards. These serve as reservoirs for the heaters and are filled with oil in the summer. In California, the heaters are placed in the orchards about October 15th. That's so as to be ready for an early frost. Then, with the heaters already placed and plenty of oil ready for emergencies, word is awaited from the Weather Bureau as to the coming of a cold wave. We usually pass out the word 2 or 3 days in advance of the wave itself. The big orchards are divided into sections, with a central weather station in the middle of the grove. A Watchman is placed at the central station. When the temperature at the central station gets near the danger point, a runner is sent out to find the temperature at the coldest spot in the orchard. He returns quickly, and, if the temperature has reached the danger point, a gang of lighters is sent out to light the burners. At first, only part of the heaters are lighted. Then, if it grows colder, more are set to burning. If it grows warmer, fewer heaters are lighted. In that way, aided by forecasts from the weather men, the fruit grower is able to save oil and his fruit at the same time. It's a mighty good thing, too, for both are valuable. Vast sums of money are saved in this way every year. Ant its a rare thing for a big grower to lose his crop these days."

Just then the train whistled for a station and the Weather man and I bade each other good bye

UNITED STATES DEPARTMENT OF AGRICULTURE
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Chats by the Weather Man. Wed., Mar 9.

RELEASE

ANNOUNCEMENT: The Weather Man, broadcasting his regular Wednesday evening Chat, through Station _____, He's going to tell you about the Climatological Division of the U.S. Weather Bureau. This important Division can tell you, on short notice, about the climate of any section of the United States for the past 50 years.

* * *

"This man wants to know all about the weather out there".

The Weather Man was reading a letter spread upon his desk. I was listening.

"Out where?" I interrupted.

"Why, it just happens that this chap is interested in the weather of Southern California", the Weather Man replied, as he swung toward me in his office swivel chair. His letter is dated March 2nd, 1927. We get letters asking questions like this every day. Yesterday, for instance, we got a letter from a man down near the Mason and Dixon line wanting to know if he could raise cotton in that section of the country".

"Say, what does he think you are --- an agricultural encyclopedia?" I broke in.

"Not at all", answered my friend. His question's fair enough. One of the main duties of the Weather Bureau is to answer just such inquiries".

"But why doesn't he plant cotton and find out if it'll grow? Why doesn't he ask his neighbors what their experience has been with cotton?"

"It's an expensive proposition to plant cotton as an experiment", the observer replied. "And the neighbors haven't always learned to do the best thing for their particular community, you know. To raise a good cotton crop, you need a certain amount of heat and moisture, -- a growing season of some length, -- and a certain number of what are called heat-days or heat-units. The Weather Bureau has information on the weather; -- The rainfall, temperature, wind conditions, snowfall, sunshine, etc., -- for all parts of the country. Farmers are learning this and beginning to call on us in case of need.

"I see that part of it, Doctor", said I. "I can easily see how you may give that chap the rainfall and temperature figures for last Summer, say. But maybe last Summer was a freak -- not at all like the summers before that. The weather's pretty changeable".

"It is indeed", the Weather Man said as he looked out of the window at the rising clouds. "One season doesn't make the climate of a section any more than one swallow makes a Summer. But come with me and I'll show you some of our climate records".

Then the Weather Man showed me batteries of filing cases filled with records. He pointed out stacks of bound volumes, containing hundreds of tables of figures. It all looked like early Greek to me, but I was greatly impressed.

Looks like you mean business", I remarked.

"We do. Sit down and I'll tell you how we go about this climate work", and the Weather Man led me back into his office.

This climatological work is done in what is called the Climatological Division of the U. S. Weather Bureau", he began. "Dr. P. C. Day is the head of the Division. The central offices of the Weather Bureau, as you know, are in Washington, D. C.

"The United States is divided into 106 sections for the purpose of this work. These sections are often outlined by the watersheds, but not always. Most states have more than one of the sections. The State of Utah, for instance, has 2, and Texas 5. The sections are numbered. Southern Texas is numbered 1 and Maine is numbered 106. All right. Now, in the United States, there are about 200 official U. S. Weather Bureau observatories. There are over 5,000 places in the U. S., however, where weather observations are taken and recorded and sent in to certain regular Weather Stations. At each station is an observer. At each official U. S. Weather Bureau Station there is one -- or more -- official weather man, or meteorologist. Do you see what I'm driving at?"

"I think I do", said I. "You're showing me how you make the climate."

"Not at all", the Weather Man protested. "I'm trying to show you how we record the weather from day to day. The day-by-day, year-by-year, century-by-century weather makes the climate of a section or a Nation. See?

"You doubtless know that the meteorologists stationed at U. S. Weather Bureaus make daily records of the weather for their territory. These records

are sent in to the central Weather Bureau office at Washington, D. C."

"What kind of records are they?" I asked.

"Records of the rainfall and snowfall -- heat and cold -- wind velocity -- length of season -- sunshine and cloud, that sort of thing. All the many conditions that go to make weather from day to day. All right. When we receive these records, we condense them and tabulate them for months and years. For each section, mind you. For each of the 106 sections I told you about."

"That tells, then, how much rain that section had at a certain time, doesn't it? I asked.

"Exactly", replied the Weather Man. "Or how cold or hot it was at a given time".

"How long has this been going on?" I wanted to know next.

"Officially, since 1871", he replied. "We have rather complete records since that time. Of course we had some records even before that, Many folks keep weather observations in their diaries or family records. But we have official records since 1871. These records are published -- for each section and for the Nation as a whole -- in regular printed reports, every month and every year. The Weather Bureau also gets out a huge report of the weather and climate of each section at intervals of of about 10 years. The last one published brought the records down to 1920. Another one will be due about 1930. In addition to giving tables of precipitation, temperature, and things like that, it tells of the climate of the section and of any peculiar, or unusual, weather conditions such as floods, cyclones, droughts, extremely cold, hot, or dry periods. Do you see?"

"I think I do. Can a man get these reports, as well as other information on the climate and weather of any section he's interested in?"

"Certainly", the Weather Man assured me. "That's one reason why we publish the reports. Detailed information is furnished free by application to the Weather Bureau".

"Well, how do they use the information?" I asked.

"Let me give you one or two instances. Farmers thinking of moving from one area to another are interested in knowing what kind of crops can be grown in the place they plan to move to. Business men -- doctors -- lawyers -- all classes of people, use the information in some way or

another. Vacationists are interested in knowing about the climate of certain places they visit, and invalids want to know where they can find beneficial climates.

"A big insurance company used our information in rating a western city for fire insurance. The company was interested in knowing the number of days there were in a year in that place when the wind blew 25 miles an hour or more, -- also the snowfall and the temperature of the city. Real estate dealers use our publications to show prospective buyers the climate in places where they plan to buy property. A city engineer in a western town used the Weather Bureau's rainfall records in determining the size of the sewer mains which were put in that city. Mains that could handle a maximum rainfall for that place were installed. Those are only one or two uses for the records. In addition, we can tell those who are interested about the hottest, coldest, driest, wettest parts of the United States, merely by referring to the climatological records".

"Well", said I as I arose to leave, "looks to me like a man can about choose his own climate these days".

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

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Chats by the Weather Man. Wed. Mar. 16/27.

PROGRAM..... RELEASE.....

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Winds, rain, and the barometer---That's what the Weather Man is going to chat about this evening. His Chat is a regular Wednesday feature of the U. S. Department of Agriculture's radio service and is released each week by Station _____.

---ooOoo---

"When you want to do a little amateur weather forecasting, look to the wind, the clouds, and --- the barometer. Those three are worth more than 'most all other weather signs for the average man"....said the Weather Man.

"What about the ground hog, the moon, and my Aunt Het's rheumatism?" I asked. "They all claim they're right. And I know a woman who says her nose itches when it's going to rain."

"Interesting, if true", he replied with a wink. "I also know a man who plants his potatoes in the light of the moon and believes that walking under a ladder on Friday means 13 days bad luck."

"But every man doesn't have a barometer", said I. "The moon's common enough."

"You can learn to read the wind with a bit of practice", the meteorologist answered. "And there aren't many towns of any size at all in which you won't find one or two barometers. Then, too, -- the weather maps issued by the U. S. Weather Bureau list the barometric readings for each day in the year. It's a mighty small town where you won't find a weather map posted some place or another."

"Yeah", I scoffed. "But what do the readings mean? Here, take this weather map. Look at those wavy black lines. Map looks like a crazy quilt -- the kind Grandma used to make back in the days when they wore ear muffs. You tell me those black lines indicate the barometric pressure. All I see are the lines and the figures; 30.0 -- 29.9 -- 30.1 -- 29.8, and so on. Mean about as much to me as the Chinese war."

"Be patient -- sit down a minute -- and I'll tell you a bit about it", the Weather Man said as he shoved a chair forward. I sat down and waited.

"A barometer's an instrument that registers the pressure of the atmosphere", he began. "There are different kinds, of course, -- some of them are rather complicated instruments. I can't take time to describe barometers, but the usual wall barometer has a thin column of mercury within a glass tube. The pressure of the atmosphere is indicated by the barometer in figures which vary at sea level from around 30.20, and above, down to about 29.80, or below. Pressure at sea level in this country averages about 30 inches.

"All right. A falling barometer -- in other words, a low reading -- generally means foul weather. This is especially true when the wind's from the east. A high, or rising barometer, generally spells a clear-up or clear weather. And this is especially true when the wind's out of the west. 'Wind from the West suits everyone best', you know. A combination of wind and barometric readings is the best guide we have to future weather."

"How does a low barometer cause stormy weather?" I asked.

"It doesn't", the weather man said. "A low barometer is the result of certain conditions of the atmosphere that usually go with a storm, see? For instance, if your barometer reads 29.80, and if the wind's right, that's an almost sure sign that you'll get foul weather mighty quick -- to be followed within 24 hours by a clear-up and, in winter, by colder weather. If the tube reads 30.10, and a fair wind's blowing, it means fair weather with small changes of temperature, to continue for 1 or 2 days. In spring and summer -- in most parts -- a low barometer usually means rain and wind. In winter, snow or sleet. Of course it depends on the geography."

"What are these 'areas of low barometric pressure' that you chaps speak about?" I wanted to know.

"Areas of low barometric pressure are really whirlwinds of greater or less magnitude and intensity. That means, high winds blowing anti-clockwise inward into the funnel or circle. Areas of high pressure, on the other hand, are featured by westerly winds blowing spirally clockwise and outward. See?"

"I think I do", said I.

"You see", he continued, "the air tends to sweep inward to the areas of low pressure. And the wind directions produced by this tendency are largely responsible for all local weather signs. South winds bring warmth -- North winds cold -- East winds, in the middle latitudes, show the approach from the westward of a low pressure area, a storm -- and West winds indicate that the storm has passed to the eastward. It varies some in summer and winter, but not so very much.

"From the Mississippi and Missouri valleys to the Atlantic Coast -- and on the Pacific Coast -- rain generally comes with a falling barometer. In the Rocky Mountain and Plateau districts, and on the eastern Rocky Mountain slopes, the rain seldom begins until the barometer starts to rise after its drop. Weather men know the variations in this rule and take account of them. For instance, it varies some from summer to winter -- as we know."

"Well", said I doubtfully still, "if all you say is true, why can't we make out some rule which will show just which barometric readings and wind directions mean stormy and fair weather?"

"Pretty hard to make the weather follow what you call rules", the sky reader replied. "But actually there is something of a rule. Doesn't always work. Usually it's pretty near the truth, however. Taking the United States as a whole, we can make out a table of wind and barometric indications and

what they mean. In fact, the Weather Bureau has already made such a table. Won't have time to give the whole thing to you, but I can tell you parts of it. Listen closely and I'll mention one or two interesting situations:

"Wind direction, southwest to northwest; barometer 30.1 to 30.2 and steady; fair weather, with slight temperature changes, for 1 or 2 days. Wind direction, southwest to northwest; barometer 30.1 to 30.2 and rising rapidly; fair, to be followed within 2 days by rain. Wind direction, south to southeast; barometer, 30.1 to 30.2 and falling slowly; rain within 24 hours. Same, with the barometer falling rapidly, means rising wind and rain within 12 hours. Wind direction, southeast to northeast; barometer 30 or below, and falling slowly, rain will continue 1 to 2 days. Same, with barometer falling fast, spells rain with high winds, followed, within 36 hours, by a clear-up and, in winter, colder. Wind south to east; barometer, 29.8 and falling rapidly, means a severe storm coming, to be followed within 24 hours by a clear-up and in winter, by colder weather. Wind going to the west; barometer 29.8 or below and rising rapidly, clearing and colder.

"That's only part of the story. But I'll tell you the rest someday, if you want to hear it."

I assured the Weather Man I would and began to study the weather map with new interest.

Before I say good night, I'd recommend that you do the same.

---ooOoo---

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM Chats by the Weather Man — RELEASE Wed. Mar. 23.

NOT FOR PUBLICATION

ANNOUNCEMENT: The Weather Man is going to tell his radio audience about the fire-weather warning service of the Weather Bureau this evening. His weekly chats, released by Station _____, are a regular feature of Uncle Sam's farm radio service.

---ooOoo---

Good fishing weather -- for so early in the Spring -- so my friend, the weather man, and I, took a long hike into the woods. We were sitting on a sun-warmed rock under a tall pine, fragrant and friendly. A small, timid breeze now and then whispered through the branches.

The weather man looked up through the branches into the blue sky and sighed deeply and happily.

"Jim", said he, "this is great. Do you remember what that good friend of our forests, John Muir, once said?"

I picked out a brown pine needle and chewed it reflectively. "No, I don't believe I do", said I.

"The forests of America', said Muir, 'however slighted by man, must have been a great delight to God, for they were the best He ever planted!".

"Don't we still have beautiful forests?" I asked.

"Why, yes, Jim", the weather man answered. "But fires and carelessness and lack of conservation measures are rapidly cutting down on them. Fire, of course, is the greatest single menace of our forests. The United States Forest Service says that we have had 51 thousand forest fires in this country in the last 10 years. Fire sweeps an average area of 15 millions acres every year in this country alone. More than 11 million acres of this are forest land. The annual damage runs up to 20 million dollars a year -- outside of the damage done to young forest growth, watersheds, and other damage for which we can place no value in money. Think of it!"

I was surprised, and showed it. Of course I know that forest fires reap a terrible harvest every year in the U. S., but I didn't know it was this heavy.

"But that's not all", continued my friend. "Forest fires are a great enemy of wild life: game, birds, and fish. The fires sweep across the nesting grounds of grouse and other game birds, destroying eggs and young birds. Fires destroy the forage on which big game animals live. When fires come late in the Fall, big game frequently dies of starvation the next Winter. Fires spoil the fishing -- for good fishing, as every Izaak Walton knows, depends on clear waters. Fires leave the water muddy and dirty. IF SPORTSMEN ONLY KNEW HOW BIRDS AND ANIMALS ARE DRIVEN OUT BY FIRE-- HOW COVERTS AND NESTS ARE DESTROYED -- AND HOW MUCH FOOD FOR WILD LIFE GOES UP IN SMOKE OF FOREST FIRES, THEY'D BE VERY, VERY CAREFUL WITH CAMP FIRES, SMOKES, AND FIREARMS WHEN IN THE WOODS".

The weather man stopped for a minute and looked off into the woods. Then he went on: "Fires destroy lumber -- injure labor -- kill industry -- rob the community -- and increase taxes", he said. "And the worst part of it is, 90 per cent of forest fires are caused by man himself. WHEN THE AMERICAN PEOPLE STOP BURNING THEIR WOODED AREAS, THE SOLUTION OF THE NATION'S TIMBER SUPPLY PROBLEM WON'T BE FAR OFF!"

"Well, for the love of Pete, can't we do something to prevent this? I exclaimed.

"Why, sure", said the weather man confidently. "And some day forest fires are going to be a pretty scarce article. First, we've got to educate the people as to the real meaning -- the real damage -- of forest fires. First, we've got to teach 'em how to behave in the woods. A book of etiquette for campers, see? Then, -- and the Forest Service is already well under way on this thing -- then, we've got to develop still more our fire-weather warnings service of the Weather Bureau".

"Do you mean that the Weather Bureau can forecast fire-weather?" I asked in amazement.

"Exactly", the weather observer replied.

"Say -- tell me about it. I've already heard about the other".

The weather man leaned back against the friendly old pine tree and began:

"Most folks think that Summer's the dangerous time for forest fires. That's not so. Spring and Fall are the worst fire seasons, especially in the eastern sections. In Summer, the woods are green with leaves. In Winter, snow and rain keep the timber wet. But in Spring and Fall, it's ripe for trouble.

"Issuing fire-weather forecasts isn't exactly a new thing", he continued. "At first, the regular daily forecasts were used mainly by the forestry interests in the Pacific Coast States. Soon, however, we learned more about their value and extendedthe service. At present, the Weather Bureau's fire-weather warning service is divided into seven districts. I could quote you a score of letters from men who know, telling how valuable the service actually is. There have been times when fire-weather warnings, issued by one or more of these offices, have saved damage to the forests more than equal to the entire cost of the whole forcast service".

"But how do you issue the warnings?" I asked. "hat's what gets me".

"Depends somewhat on the region", he replied. "The worst fires in Washington and Oregon occur along with the dreaded east wind. When even moderately warm, dry weather comes before these east winds, conditions are caused which start fires easily. And when they start ----! Even human efforts, well organized and vigorous, have a mighty hard time to stop them.

Very often the fires aren't put out until they've destroyed vast areas of valuable timber land.

"If we know what the weather is today -- and what it will be tomorrow -- over large areas in the forest regions, we can put experience and science together and make forecasts of value for the entire region. There are times when the fire hazard is low and fires few. There are other times when fires break out easily and spread rapidly -- without apparent reason. We now know that this difference in fire hazards is caused mainly by differences in the drying power of the air from time to time. When the air's dry, material drys out quickly and fires start easily. A foreknowledge, then, of the humidity of the air will go a long way toward accurate fire-weather forecasting. And, when the fires once start, this knowledge will help to fight the fire already under way.

Meteorologists at the different weather and forest stations in fire areas make their daily observations of wind, humidity, and other weather conditions, with the aid of their instruments and the reports from other stations. They then draw up their weather charts, about as all weather observers do, for use in their own territory. I've already told you, Jim, how the weather maps are made and how we make our daily observations. It's not so different in fire areas, except that we pay special attention to fire-weather and learn by experience what to expect under certain conditions".

"I think I see the idea", said I.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM Chats by the Weather Man. RELEASE Wed., Mar.30.

NOT FOR PUBLICATION

ANNOUNCEMENT: The Weather Man's in a poetic mood tonight. So he's going to talk about rain -- and recite a verse -- and tell a couple good yarns. Rain's very timely just now, so his talk fits in nicely with the weather chats the U. S. Department of Agriculture releases through Station _____.

---ooOoo---

A few bursting buds: Plop - Plop -- A gentle shower or two -- some plowmen in the fields -- and perhaps some fat worms peeping from the soil, make an amateur Wordsworth out of me. Oh, I don't mean that Spring makes me write verse. I mean that it makes me want to recite it. So here's a verse -- I don't know who wrote it -- that I'd like to recite for you. It goes like this:

"'Tis like the birthday of the world
When earth was born in bloom.
The light is made of many dyes,
The air is all perfume.
There are crimson buds, and white, and blue,
The very rainbow showers
Have turned to blossom,
Where they fell, and sown the earth with flowers".

But rain's not always gentle like that, is it? Sometimes it comes in sweeping, wind-blown sheets that rattle the windows and leak through the roof onto the new rug. Reminds me of a yarn one of our weather observers tells of a cloud burst he observed out in the Rockies some years ago. Here's the story, in his own words:

"I was on an excursion with some relatives, up around Silver Plume, near Georgetown Loop, in the mountains West of Denver, Colorado, a number of years ago. It was a hot, sultry day and so, noticing a large patch of snow near the timber line on a neighboring peak -- some 11,000 feet high -- I decided to climb up to the snow and wade in it in the Summer time. It was a kid's idea, but I guess we're all more or less kids at heart -- no matter how old we are.

"Well, I reached the snow and, like the jolly Pat, waded in the snow 'wid me own bare feet'

"The great peaks; Long's Peak, Gray's, Evans', Arapahoe, and Pike's, all near 14,000 feet high, were silent and majestic in the waiting air. All of

the peaks showed dense cumuli clouds nestling on them like giant hens trying to hatch them out. Soon great clouds crept up and hid the lower parts of the mountains. The air became almost as black as midnight and I heard the sinister muttering and rumbling of a thunderstorm far away. Then the storm broke and I had a grand stand seat. The most terrible thunder crashes rolled, and grumbled, and burst through the heavens. Lightning flashes, almost as thick as a man's thigh, sizzled through the air with terrifying cracklings. I think of those sounds even yet, with a shudder.

"The storm rolled down like the approach of a thousand loaded express trains passing each other at high speed. A horizontal wind swept out of the West -- blew upward and eastward -- and almost threw me from the mountain. I was forced to flatten myself on the ground and cling to a scrub pine for life. Great gobs of water, blown by the wind, drenched me -- then fine hail, and later sharp spears of ice -- pelted the mountain side. As the barrel-like cloud blew on darkly with the wind, the straight tempest from the West was followed by blinding sheets of rain. It was a gullywasher -- if there ever was one.

"Well, I hung on till the storm passed on, then shambled wearily down the mountain. As I stumbled along, the sun came out and scorched me. Water-logged and blown, I was more than glad to rejoin my friends at the foot of the peak. I had lost all interest in Summer wading in snow and had developed a healthy respect for mountain storms in general."

Cloud bursts may not be too pleasant, but every man knows that we must have plenty of rain in order to live. Isn't it queer how we depend on the elements, anyway? Not only for our food and clothing. Even for our moods. Take a Summer rain, for example. It's beautiful and clean and exhilerating. It gives the atmosphere an undescribable <u>feel</u> that nothing else can. On a Summer night, when the sky is black and threatening, you feel that something is bound to happen to you and all the world. The winds increase -- the thunder rolls and rolls, increasing to great crashes that seem to rock your house to the foundations. Then the lightning and the rain and the storm slinks away -- as all storms do -- leaving the world quiet and serene. You go to sleep, feeling that everything is indescribably right with the world. You awake next morning to see a world new born. That's what a Summer shower can do.

But that's not <u>all</u> rain can do. We might possibly get along without wind or snow or fog. But we <u>must</u> have rain in proper quantities and distributed in the right averages and extremes or we'll have crop failures -- and famine. In the United States, it's in the growing season of a scant 3 or 4 months that we need that rain always badly. There first must be enough heat to start life growing in the soil -- rain to nourish the plants -- and sunlight enough to ripen the fruit or the grain. Sounds simple, doesn't it -- this great parade of the storms and the sun and growing things. But it's the most complex of all things because it's life itself.

The farmer may think he has a hard job cultivating and harvesting his crops. But if Nature should refuse her assistance for a single season, it would tell a story of bankruptcy and starvation throughout the country. It takes from 12 to 15 inches of rain to mature an ordinary crop in an average American farm territory. This amounts to from 14 to 16 hundred tons of water per acre. Now suppose that Mr. Farmer finds, at the beginning of the season, that he would have to haul this water to his crops or they wouldn't grow. And suppose it cost him a dollar a load. Where would his season's profits go? Well, they'd certainly go on the water wagon. In addition, he'd have to spend additional money to buy fertilizer for his land which the rain washes down from the air.

That's how it is with rainfall, you know. Nothing else will quite do, except in small, isolated areas where artificial rainfall, or irrigation, has been provided against the shortage of rain.

Some regions of the world receive 3 times as much rainfall as others and damage may result from this excessive fall. Heavy rains wash away the soil and there's a constant loss of fertility because of the rain. Millions of tons of soil are carried off into the ocean every year, by the rivers, fed by rain. The famous Yellow River in China, sometimes called the yellow peril or the river of sorrow, has had such vast floods in times past that as many as 50 thousand people have been killed as a result of one tremendous rainfall.

So, you see the results of rain are not always beneficial. But it won't take much deep thought to see that the benefits far out-number the liabilities of Nature's great purifier and enricher. If rain washes away our choicest soil, it breaks do wn the rocks and makes soil to take its place. If rain washes fertilizer away, it is constantly carrying down from the air more of the same valuable product. Every thunderstorm brings us a fresh supply of ozone to purify the air we breath. Though the rain may cause the poisonous plant and noxious weed to grow and flourish, it also does the same for our bounteous fields of grain and rish orchards full of fruit. Rain has been called the oil of gladness which lubricates the mental and physical machinery of the farmer and so makes us all happier and more prosperous.

And then just look what the rain means to poets -- especially in Spring!

And so good night,....

---ooOoo---

ANNOUNCEMENT: That good night means good bye. At least for this season. For, with this Chat, the Weather Man discontinues his series for the Summer. Watch for him again next Fall. He wants to thank you all for your interest and attention during the year and wishes you all a prosperous and happy Spring and Summer.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

SEP 26 1927

PROGRAM Chats by the Weather Man. Wednesday, Oct. 5, 192[illegible]

RELEASE

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Everybody talks about the weather, said Mark Twain, but nobody seems to do anything about it. That's an old joke now, but it comes in handy even now, once in a while. But we were just going to say that there's SOMEONE who does something about the weather. THE UNITED STATES WEATHER BUREAU. And this year we're going to tell you how---in a series of Chats by the Weather Man which will be released by the United States Department of Agriculture every other Wednesday through Station _____. Stand by for Chat Number One.

--ooOoo--

Everybody's still talking about this year's terrible and destructive Mississippi River flood.

Everybody's wondering if there's any way to control that great Father of Waters and all his river Children that add to his currents that flow to the sea.

As the newspaper men say, there's a good story in Flood Control just now, There'll be a good story in that for some time to come. And if it's a good story for the papers, it ought to make a good radio chat for you.

At least that's what I thought as I climbed the steps leading to the office of the Weather Man who has made a special study of river stages, floods, and especially the Mississippi which is a study all by itself.

I found the Weather Man busy at his desk.

"Good morning", said I. "We're still interested in the Mississippi flood".

"You had a radio talk on that the middle of last February", said the Weather Man.

"I know it", I smiled, "but a lot has happened since then. And, while I know that the Weather Bureau can't very well go down there and build levees to keep back the water, I do know that you weather observers can tell about when a flood's going to break. That's a mighty big help to people living along the rivers, seems to me. I am told that the money value of property saved as a result of Weather Bureau flood warnings amounted to 37 million dollars in the last Mississippi River flood along. Is that correct?"

"That's the figure we carefully deduced from our reports", the Weather Man assured me.

"Have you any idea what the total flood losses are?" I asked, knowing that

most folks are interested in total losses almost as much as in total gains.

"When I refer to these total losses, I refer only to this year's Mississippi River flood", cautioned the Weather Man. "These figures are not the losses resulting from all river floods in the history of the United States, mind you. This year's Mississippi River flood---which includes floods along its tributary rivers, as well---was certainly the most disastrous in our history. Now, about the losses. This flood causes miscellaneous losses of 97 million dollars---losses to crops of 93 million dollars---livestock losses amounting to 23 million dollars ---'protection' costs, 30 million dollars---losses due to suspension of business amounting to 46 million dollars. This makes a total of 290 million dollars, approximately. Now, since all these estimates are very conservative, and without doubt too low, if you add twenty five per cent to the total loss you will get a more likely total loss due to the Mississippi flood amounting to 363 million dollars."

"That's difficult to velieve", I said doubtfully.

"It is until you know that more than 18 million acres of land were flooded by the high water. That's 28 thousand square miles. More than 4 million acres of cultivated land were flooded. Over 600 thousand people were left homeless. That's more people than there are in the city of Washington. Can you believe it now?"

"I can", I declared with assurance. "By the way, is there any way to find out how many people lost their lives in this flood?"

"Yes", the Weather Man said. "We have accurate reports that 313 human lives were lost in the Mississippi flood. There would have been more had it not been for the fact that people are paying more attention to flood and weather forecasts and warnings."

"Say", I gasped, "how long did this flood last?"

"About seven months", the Weather Man told me. "High water on some of the Ohio River tributaries began to be felt about the latter part of December, 1926. And it was the last of July before the last river station reported that the flood waters had gone down. Even as late as last August, there were between 25,000 and 30,000 acres of land still under water in Louisiana. And to make it worse, the water carried sand over some land and it will be a long time before they farm <u>that</u> land again".

"It looks like the Weather Bureau river and flood service has just about a year-'round job", said I.

"Just about". The Weather Man turned to a map on the wall of his office. I noticed that there were more than a thousand pins with colored heads stuck into the map at various spots. Most of the pins seemed to be along the Mississippi River---east of the Mississippi River---and along the valleys of the Arkansas and Colorado rivers.

"What do those pins mean?" I asked.

"Those pins show the location and extent of the Weather Bureau's flood, snowfall, and ice service measuring stations", he told me.

"Notice the sweep of the pins east of the Mississippi River? That indicates the flood areas. We divide the United States into 66 districts. There are about 1,000 stations scattered over the Nation. We have meteorologists at each district station, and there are observers of one kind or another at all the stations. The districts covering the Ohio, Cumberland, and Tennessee rivers---and the Mississippi River---are among the most important. Now let's take a particular case.

"You'll remember the flood at the lower end of the Mississippi about February 1st, no doubt. Well, Weather Bureau men were able to forecast that flood from 10 days to 3 or 4 weeks ahead of time. They were able to forecast the time of the flood, and the extent of it as well.

"Let's trace that flood down. Of course, up in the smaller streams and rivers---in the more hilly country where the water flows faster and where numbers of small streams contribute to the quantity of water in the main stream---we can't predict so far ahead. There was a damaging flood last December along the Tennessee and Cumberland river. Perhaps you remember it. That same flood was passing Vicksburg, Mississippi, January 29. We predicted it many days ahead. As the rising waters go along down the river, it becomes possible for us to predict the coming flood farther and farther ahead and with more and more accuracy. It is an ordinary occurrence to forecast high water from 2 to 4 weeks ahead at New Orleans. You see, the rising waters pass on down the river, and as they move along, our observers measure and observe the movement and telegraph ahead."

The Weather Man paused a moment and looked out of the window. "Down South", he continued, "thousands of cattle are pastured in the swamp lands where they can feed throughout the year unless they're driven out by floods. Floods in that section are rather frequent. So we issue flood warnings often. The warnings enable the farmer to drive his cattle to higher ground and to provide food for them while the high water covers the pastures. Some years ago, before we organized the flood service, a great many cattle were drowned every year. Now losses of this kind are rare and very small. Frequently in the late Summer or early Fall, some crops, are left standing in the low lands. Flood warnings, issued some days ahead, send the farmers to the fields to harvest their endangered crops."

"Not to mention the lives these warnings save", I added.

The Weather Man was modest about his reply to this. "Well, we do the best we can", he said. "We're public servants and try to use our ability and resources to the best advantage".

"None of us can do more than that", I said. "And by the way, I hear that if the whole cost of the Weather Bureau's work in a year were distributed equally among the people of the United States, it would cost each person only the price of a two-cent postage stamp".

"That's about right", the Weather Man said as he started to open an official-looking letter. "Not very much under the circumstances, is it?"

"It's my opinion that two cents couldn't buy more", said I as I said good-bye and left him busy at work.

---ooOoo---

ANNOUNCEMENT: Later on in the year, Uncle Sam's Weather Men are going to tell you more about their work. Frost warnings, aviation weather service, how to forecast the weather, weather signs, are only a few of the things these men will describe for you. Remember, the Weather Chats will come every other Wednesday at this hour, broadcast by Station _____.

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PROGRAM CHATS BY THE WEATHER MAN RELEASE Wed., Oct. 13.

ANNOUNCEMENT: Last Wednesday we introduced the Weather Man who told you how he is able to predict storms and fair weather correctly 90 per cent of the time. We have him on the air -- no attempt at a pun -- again tonight.

- - - - - -

I want you to hear a verse I read, -- somewhere. Some unsung bard wrote it. It goes like this:

"What is it molds the life of man?
The Weather.
What makes some black and others tan?
The Weather.
What makes the Zulu live in trees,
And Congo natives dress in leaves,
While others go in furs and freeze?
The Weather."

Do you know why everybody talks about the weather? Because it's always different. You can't tell just what the next 48 hours are going to bring. The weather is one of those "mercies of God" that are new every morning.

This has been an unusual Summer, hasn't it? But so was last Summer unusual. And the Summer before that, -- and the one before that. The seasons are eternally unusual. Weather makes them so. Weather is always different. No two days -- nor no two human faces -- are ever quite alike. That is because there are so many things that go to make up differences between days and human faces. One man has brown eyes and a Roman nose. Another may have grey eyes and a crooked nose. Some people are fickle -- so is the weather.

Here are a few of the things that go to make our todays different from our yesterdays. Temperature, rain and snow fall, wind direction and speed, sunshine, cloudiness, and the pressure of the air. These conditions can change much in a short time. Especially in sections where the weather is very changeable.

The weather travels across the county with an average speed of a passenger train. Consequently, the weather can change rapidly. If the wind's right, a storm can travel down upon you from a thousand miles away in from 30 to 36 hours. Many people don't know this, but most people above the age of eight years know some of the signs of storm.

Reading the skies for signs is about the oldest science we have. Three thousand years ago people were quite expert in the art. As the ancient shepards wandered over the hills, -- and studied the stars in their divine course, -- they also took note of the lightning and thunder of approaching storms. They didn't

forget to take written notes and, upon clay tablets unearthed from the ruins of almost forgotten Assyrian cities, may be found descriptions of the eclipses of the sun and moon, the records of winds and rain and other weather conditions that affected their lives.

When Job said,

"Fair weather cometh out of the north,"

he was merely putting into a simple maxim the accumulated knowledge of centuries of observations in his own particular territory. Solomon, the wise man, said,

"The north wind driveth away rain,"

which is about the same thing, -- said differently. Solomon, who was very rich in wives, flocks and herds, and fine raiment, knew the importance of keeping this wealth of his, sheltered from the unkind storms. We, in this mordern age, don't worry so much about the approach of rain as the ancients did. We seek shelter in steel-and-concrete buildings and let it rain. And yet we think of the rain. You have heard the famous rain song that swept over America two or three years ago:

"Oh, it ain't gonna rain no more,
No more --
It ain't gonna rain no more" ....

and so on. Not quite so dignified as Solomon's.

"The north wind driveth away rain,"

but very modern. And then there's the wistful song that goes something like this,

"Let it rain, let it rain,
Let it pour," etc.

I was brought up on this famous weather maxim:

"Red night -- shepard's delight.
Red morning -- shepards take warning,"

and used to scan the skies on the night before the Fourth of July with all the anxiety of the ancient Chaldean shepards.

So we find that the weather has been an absorbing topic of conversation in the tent, at the gate, on the ship, in the market place -- as well as in the crossroads store. Our ancient forefathers watched the skies with all the zeal of the modern farmer and mariner. They talked about the skies as eagerly as we do.

Like the poor relatives, the weather is always with us. For that reason we are apt to take the weather for granted and overlook its great influence on our lives. This is not so much the case in regions where the weather is subject to sudden and violent changes as it is in regions where the climate is more equable. In the Continental interior of the United States the weather is new every morning and of infinite variety. We have cold waves and thaws, thunderstorms and droughts

blizzards and calms, 20 degrees below zero and 100 above, following each other like clowns and elephants and band wagons in a circus parade. The weather parade is one vast, colorful spectacle -- a constant subject for thought and conversation The march of the seasons brings a succession of occupations:-- In the Spring the plowing of the soil and the sowing of seed, the beginning of building; in the Summe and Fall, the care and harvesting of the crops and outdoor constructive work of all sorts; in the Winter, ice cutting, lumbering, the care and protection of livestock.

Think of the influence of the weather on the kind of houses people live in! In the tropics, the thatched grasshuts are needed only to keep out the heavy rains. In the north, the Eskimo's dome-shaped igloo made of ice and snow, with one small opening, is made to keep out the blizzards and the cold and to keep in the warmth from his body and from the smoky fires of burning fat. On the hot deserts, the houses are usually low and open, with flat roofs and shady, plant-filled courtyards where the residents go to escape the heat. Notice the difference between the degraded life of the Australian Bushman in the loneliness of his hut, or the cheerless life of the fur-clad Eskimo, with the sophisticated life of the Parisian or the Londoner. Isn't the climate the main reason for these differences?

Weather and climate influence land values, crops, the time for shipping goods the color of our skins, the height of office buildings, the cheerfulness of men, the food we eat, the games we play, our hopes, our fears, -- the length of our lives.

It is little wonder we admire weather, -- fear it, -- talk about it. Many tribes in the dim and shady past of the race worshipped it.

- - - -

Next week the Weather Man will go on with his interesting story of Weather,- the oldest thing in the world. This series of talks are furnished under the auspic of the U. S. Department of Agriculture.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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PROGRAM.....CHATS BY THE WEATHER MAN.....RELEASE Wednesday, Oct. 19

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Today the Weather Man is going to tell you about the Weather Bureau's forecast service to airmen. He's going to use the Lindbergh flight as an illustration. Incidentally, he has a lot to say so please stand by . . . .

---ooOoo---

The Summer is over. Fall comes with the echo of tremendous adventures. All summer the air knew the whirr of airplanes; giant planes, small planes, planes silver-colored, grey, white, and dark. Great names have passed from lips to lips. Lindbergh, Byrd, Chamberlin, Redfern, Maitland, and a score more. The Atlantic has been crossed in a single flight. The Pacific, from California to Honolulu, has been spanned without a stop. A lonely flyer set out last May on a flight perhaps unparalleled in adventurous history, and flew from New York to Paris without a stop. Others followed with Atlantic flights. Still others soared into the sunset over the Pacific. These men are great and daring. They flew for a cause.

Now it has been done. Winter is coming on and such flights must be postponed for a time. It is time to look back on what the Summer's work in the air has meant to America and to civilization in general.

First of all, we must remember that the airman is largely dependent on favorable weather for his success in long-distance flights. All of last Summer's magnificent adventures in the air were not victorious. The storm conquered some. Mechanical imperfections in the planes themselves, brought other flyers down. Time and study will perfect the mechanics of flying. Man cannot make changes in the weather. He can only take advantage of the weather's whims. But first, man must know about even these. The United States Weather Bureau has made a specialty of studying the weather for many years, until now, the Bureau is able to predict, 90 per cent accurately, coming changes in the weather.

Weather observers are able to predict to-morrow's weather over the land where observation stations are numerous -- where observers are stationed in favorable locations -- where observations on wind velocity, air pressure, rainfall, temperature, and so on, can be telegraphed from station to station in a very short time. While it is not at all a simple matter to predict the movement of a storm over the United States, even with the complicated storm reporting and forecasting system which the Weather Bureau uses, still it is harder to chart and predict a storm's movement over an ocean. But, before trans-Atlantic and trans-Pacific flights can be commercially successful, ways must be found to chart accurately storms over oceans and to forecast their future courses.

The Weather Man told me all this when I went to visit him the other day. I wanted to find out what the Weather Bureau is doing to make the air safer for airmen.

"Let's go back to last Spring," said I, in beginning. "Was the Weather Bureau getting any regular weather observations from out in the Atlantic then?"

"We were getting observations from the seacoast areas along the Atlantic and Pacific", answered the Weather Man, "as well as from points in the Caribbean Sea. But, at the time of the first-attempted trans-Atlantic flights, we were getting very few weather reports from vessels in the Atlantic steamer lanes east of New York City. Of course, the Weather Bureau was receiving scattering reports from the Azores, Iceland, Greenland, but you see, the flyers who wanted to span the Atlantic in a single flight, took out over the water and they needed frequent reports from points out at sea."

The Weather Man continued --

"Lindbergh followed the Great Circle route from New York to Paris. Now this route is off the regular steamer lanes and ordinarily we get no weather reports from points on or near the Great Circle route over the ocean. From where you set out oversea from Land's End, Newfoundland, there are 18 hundred miles of stormy North Atlantic water before you reach Ireland.

"You remember how the flyers waited in New York City for favorable weather reports. It would have been very foolish for even the most daring of them to have set out in the face of a storm, or against a doubtful weather report. Finally, on the morning of May 20th, Lindbergh set out. He had received a report that a storm was moving off toward the North, out of his Great Circle route, but it was still near enough so that he met a fog and some rain that froze on his plane as the air cooled to the freezing point. Then, when he got further along in his memorable flight, he met the outer fringe of a storm that was moving north and east. Luckily, the wind was at his back and that helped him on part of his way over the water west of Ireland. He literally flew over that stretch of his journey on the wings of the wind. He landed in Paris safely, as you know. Chamberlin and Levine were successful in reaching Germany on their f famous flight. Byrd and his companions made the jump. But how many failed?"

"The Weather Bureau at first had no money available to supply a special Atlantic weather report service for flyers", continued the Weather Man. "It takes considerable money to maintain the two hundred weather observation stations which dot the United States, and the taxpayers must be convinced of the need for the expenditure of additional money before they will grant it to any service. Then a wave of long-distance flying swept over the Nation. Something had to be done to protect the flyers.

"Well, action was taken. To start the thing, the Radio Corporation of America agreed to transmit free, the weather reports from vessels along or near the flight route while Lindbergh was preparing for and making his flight. Then the Weather Bureau used money from a special fund and extended its North Atlantic weather service until, late in the Summer, reports were being received from vessels along the route, from Newfoundland, Greenland, Iceland, and out at

sea. Reports from Ireland, England, and western France were also received in time to aid some of the flyers.

"Even during the Summer, weather conditions over the Great Circle route from New York City to Europe are so changeable that it's rare that weather favorable to long-distance flying is found all the way across."

"Could the flyers follow the course of a storm and still keep out of it?" I asked.

"No", said the Weather Man, "because they travel so much faster than a storm. And then too, the speed of a storm varies. Its path may be open or blocked. The North Atlantic zone is a stormy section at best and the past season has been no exception to that rule. Up there where the aviator flies it may become so cool, even in Spring and early Summer, that the rain will freeze on the airman's wings and form a glaze. This has brought down more than one flyer. These North Atlantic storms often cover a large area. In addition, fog often settles over the Grand Banks, Newfoundland, as well as over other areas of the Atlantic, and you know what fog means to the aviator."

By this time, I could see the difficulties of flying over the North Atlantic route. I could also see some of the dangers of ocean flying in general. So I asked--

"Isn't there <u>some</u> way by which a regular ocean weather service for airmen could be worked out?"

"There <u>is</u> a way", replied the Weather Man, "but it will cost money. In order to work out a consistent ocean weather forecast service, it will be necessary to receive large numbers of daily reports from ships at sea as well as from stations along the seacoast and in the heart of large land areas. If you have all of these stations distributed and organized, there will then have to be some central station where the reports are gathered together, analyzed, weather maps made, and from which the forecasts are finally issued. In order to forecast the weather over the North Atlantic, there will have to be many ships out at sea which will send in careful weather observations once or twice a day. Altogether these ships will have to send in thousands of radio messages and cablegrams. Both radio messages and cablegrams cost money to transmit. It will cost money to organize the work. Some day it will be done. Flying over the ocean will be commercially profitable and then there will be plenty of money to use in organizing this ocean weather forecast work. Meanwhile, the Weather Bureau is going ahead with plans and work. The Bureau already is making ocean weather forecasts on a small scale. By a <u>small</u> scale, I mean, a smaller scale than the Weather Bureau's land service. But it cost the Weather Bureau about $5,000 to pay for radio messages and cablegrams transmitted during last Summer's trans-Atlantic flights. An all-year-'round service, extended and well organized, would cost many times that much. But it would be worth it and someday we'll have it."

---ooOoo---

ANNOUNCEMENT: These weather chats are released by the United States Department of Agriculture every other Wednesday. Station _____ will put another one on the air on November 2nd.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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PROGRAM RELEASE

CHATS BY THE WEATHER MAN. Wed. Nov. 2/27.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Fire-weather warnings is the subject of today's CHATS BY THE WEATHER MAN released through Station _____ by the United States Department of Agriculture. The Weather Bureau is doing certain valuable work in cutting down forest fire damage to America's forests and this CHAT tells how . . . .

---ooOoo---

---Sound of a telephone bell ringing---

"Hello", answered the Weather Man, and then---"I beg your pardon. Why yes, I suppose you may if you want to". . . .

I waited, sensing something interesting.

There was some more talking which, naturally, I did not hear. The Weather Man listened, smiling. Then he hung up the receiver and turned to me, sitting near his desk in his office in the town hall.

"A lady wanted to know if she might safely wash her hair today", he said.

"Rather an unusual request, isn't it?" I asked. "Seems to me that's rather out of your line of duty".

"Not so much as you might think", my friend said. "You see, she thought I'd know if it will be dry enough to properly finish the operation. I told her that rain is unlikely today and she seemed satisfied, thanked me, and said good bye".

"Do you get many questions like hers?" I wanted to know.

"More than the average man suspects", the Weather Man replied. "Last week a young lady enlisted my assistance in setting a favorable date for a wedding. She told me that she wasn't in the habit of getting married very often and she wanted to be sure the weather would be favorable when the occasion came up. Oh, our duties aren't confined to predicting frost, floods, and dry weather for forest fires".

"I suppose not", said I innocently. "By the way, I came up here today to find out what the Weather Bureau is doing toward preventing forest fires. I understand that direct damage to our forests by forest fires amounted to more than 26 million dollars last year alone. I read that this damage was the result of more than 90 thousand fires which burned over about 24 million acres of land in the United States and that more than 72 per cent of these fires were caused by man".

"The damage was really greater than that", the Weather Man added. "You see,

fires caused immense loss to watersheds, scenery in natural parks, grasslands, and recreational grounds in the forest regions. It's practically impossible to estimate the money damage to these things. Americans should pay special attention to preventing this huge fire menace to our national forests".

"I can easily understand that", I agreed. "Of course I know that folks should be more careful with matches, camp fires, and so on. But it seems to me that the most damaging forest fires must occur in certain seasons when the weather is favorable".

"I congratulate you on your insight", the W. M. said rather ironically. "Make yourself comfortable for a few minutes and I'll tell you about the Weather Bureau's fire-weather warning service as it directly affects the forests.

"Now to begin with, all intelligent people accept the fact that a knowledge of coming weather changes is vital to the conduct of practically all industries. It follows logically enough, that efforts to prevent and suppress fires in our public and private forests can be influenced by knowing what the weather will be today and tomorrow. The Weather Bureau has had a good opportunity to demonstrate that fact conclusively in the Far Western States during the past few years through the cooperative work of the Bureau with the Forest Service, state foresters and forestry associations. Everyone who has anything to do with forestry problems--- especially forest fire fighting--- knows very well that there are times when the fire hazard is low and other times when the hazard is high and the number of destructive fires large. We have learned that these differences in fire hazard are largely due to differences in the drying power of the air", and to the force and direction of the winds.

"What's that?" I asked.

"Well, in simple words, the quantity of moisture in the air, or the humidity of the air", explained the W. M. "Furthermore", he continued, "this drying power of the air has a marked effect on the ease and rapidity with which trees, brush, and other forest materials burn. Now, don't you see that if we can determine in advance this degree of humidity of the air which affects the inflammability of materials, we can take steps to control forest fires? In other words, we can make special preparations to prevent the occurrence of forest fires, or to control them if they once get started. The importance of the winds as a factor in spreading the fires is too well known to say much more about it.

"All right. Knowing these things, the next step was to organize fire-weather warning service to meet the demands for information concerning the changing weather conditions in the forested regions of the United States. It was not so long ago when the Congress of the United States appropriated funds so that the Weather Bureau could organize this service. The Bureau did organize the work and established a special fire-weather warning service in the far Western States, the upper Lake regions and in New England. Soon after the work was organized, the officials of the Western Forestry and Conservation Association stated that they regarded the organization of that service as the most notable step of the year in forest conservation in the Pacific Coast States".

"Didn't the Weather Bureau organize a fire-weather warning service in any

other parts of the country?" I asked. "There are certainly very valuable forest areas in the South, in the Appalachian region. I should think these forests deserve protection, too."

"I can explain that this way", the Weather Man said. "The issuing of forecasts as an aid to the protection of forests against fires isn't exactly new. At first, the regular daily forecasts were applied in the main incidentally by forest interests in the Pacific Coast States, but there were so many advantages in the service that soon other Western States were asking for the service and then came requests from other sections as well. This led to the organization of a special forecast project, known as the fire-weather warning service, in many parts of the United States but it was not possible with the facilities at hand to extend the work to all sections. Today, the issuing of fire-weather warnings is a separate forecasting service of the Weather Bureau with scores of stations in all of the important forest regions cooperating."

"How are these fire-weather warnings issued?" I asked.

"Well", said the Weather Man, "first of all, they are based on the daily weather charts which are prepared in the various State centers where the fire-weather studies and services are centralized. These charts are made after weather information is received by wire from numerous weather observers at widely scattered stations out in the field and they show wind velocity and direction of the wind--- the temperature--- humidity--- rainfall--- air pressure, and other things. When experienced observers have these charts, prepared from information furnished by observers on land and sea, there's every reason to believe that they will be highly successful in giving timely warnings of nearly all weather changes that go to increase or decrease the forest-fire hazard. The Weather Bureau is localizing these forecasts and warnings in important forest areas by having many stations in those areas. This system makes it all the easier to issue warnings and forecasts for large forest areas as well. We know that this warning service is working out successfully. It will grow better and better as we are able to extend the service to larger and larger forest regions.

"By the way", the Weather Man added, "if you are especially interested in this work, you ought to write to the Weather Bureau office nearest you for still more information. You know, the same conditions that lead to dangerous fires in the forests also contribute to destructive fires in the cities. That brings all of us in, doesn't it? It's just possible that you may remember the fire in Berkeley, California, in September, 1923. That fire occurred under very unusual conditions. On that day, the humidity at San Francisco was the lowest during the entire summer of that year and the wind was a gale out of the northeast. In order to conserve our forests, and save our cities, we must protect them from fires. When you hear a fire-weather warning broadcast by radio, better take heed for it is telling you that weather conditions are coming that make fires easy to start and hard to stop".

---oOo---

ANNOUNCEMENT: Another timely CHAT BY THE WEATHER MAN will be broadcast by this Station on Wednesday, November 16.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

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CHATS BY THE WEATHER MAN. Wed., Nov. 16.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: In his firstthree talks, the Weather Man has told the audience of Station_____how the Weather Bureau issues flying-weather, flood-stage, and fire-weather warnings. Later in the year, he is going to tell you about other important work the Weather Bureau is doing. But he thinks it's about time to tell you how the Bureau is organized. Incidentally, he's going to tell you a bit more about himself. So stand by.

---ooOoo---

"I've found that most folks would rather tell you what they're doing than who they are".

It was the Weather Man speaking. He looked at me and smiled philosophically.

"That's true", said I. "But our radio audience wants to know who you are. There'll be plenty of time later to tell them all about what you're doing".

The Weather Man smiled again and I began to wonder if he was smiling at me. I straightened my tie and waited.

"By the way, have you heard that the Weather Bureau has opened a weather station in Nicaragua?" he asked.

He couldn't lead me off that way. I was after some personal information.

"That's all very interesting, of course", I said, "and it will make a good talk a bit later in the season. But our radio friends want you to introduce yourself, Mr. Weather Man. So stand up and make a pretty bow and speak a little piece".

"Isn't that a bit informal?" the Weather Man asked. "We don't spend much time bowing and speaking pieces--- we meteorologists".

"I was joking", I said. "You have a good way to begin. You just said that you're a meteorologist. Please begin by telling me what a meteorologist is. Just pretend that I have never heard of a meteorologist before".

"Sometimes I wonder if you have", said the Weather Man.

"Pheeeew! That was cutting". I smiled. So did the Weather Man. Then

he began---

"In the first place, a meteorologist is not the man who makes the weather. That's a pretty old joke by now, but I notice some folks are still using it".

That made me a bit uncomfortable. The Weather Man went on---

"Of course man can protect himself against the weather. But I don't know any man who has any success trying to stay off a storm or change its course.

"The word meteorologist comes from the word meteor. Meteor really means, a thing of the air. A shooting star is a meteor, but so is a cloud, a rainbow, a thunderstorm, or a cold wave.

"Meteorology, then, is the science of the weather. A meteorologist is a scientist who makes a study of that science and seeks to know the processes that operate to cause weather changes and then to apply that knowledge for the benefit of mankind".

I broke in with a question.

"How long has this been going on?" I asked.

"Well", said the W. M., "meteorology is perhaps the oldest of the sciencies. And yet modern meteorology is comparatively new. The weather has been studied and written about ever since man began to study and write. Scientific meteorology, however, is somewhat recent. Today, for instance, no mariner would think of putting out to sea without having a reliable barometer on board. But Columbus made his adventurous voyage--- Magellan sailed around the globe--- and Drake explored the Pacific coast many years before Torricelli invented the barometer in 1643. Today men read the thermometer with interest, in the hopes of seeing a record for heat or cold broken. But the Pilgrims and their descendants endured almost 100 stiff New England winters without even knowing how cold it was. Although Galileo invented a crude clinical thermometer in 1590, Fahrenheit didn't develop a practical thermometer for ordinary use until 1714 and it probably didn't come into common use until some time after that".

"Where's all this getting us?" I asked.

"Be patient", begged the W. M. "I'm telling you about the beginnings of weather forecasting. You want the end before you get the beginning."

"You embarrass me", said I.

The Weather Man continued---

"Benjamin Franklin was one of the first American meteorologists. Back in 1743--- some years before you were born--- while he was studying an eclipse of the moon, Franklin learned that although the winds in a storm which prevented him from taking an observation of the eclipse at Philadelphia

were blowing from the northeast, this same storm reached Boston after it had passed Philadelphia--- although Boston is certainly northeast of Philadelphia. That led Franklin to a study of the movement of storms and that movement is one of the things in which modern meteorologists are interested. Franklin's discovery laid the foundation for the modern science of weather forecasting.

"The first practical weather forecasting service in the United States was organized in 1869, by Professor Cleveland Abbe, under the auspices of the Cincinnati Chamber of Commerce, to serve the Ohio Valley. The Government took up the work soon after and, in 1870, under the direction of the Chief Signal Officer of the U. S. Army, a public weather forecasting service was established. Weather forecasts were based on telegraphic reports received from 22 stations. For more than 20 years, the work was carried on by the Signal Corps, but in 1891, the Weather Bureau became a civil establishment, under the Department of Agriculture. It remains that to this day, although the 22 stations have grown to many hundred, and the weather service operates, not only on the Continent but out into the surrounding oceans as well".

"What is the Weather Bureau's main object today?" I wanted to know.

"The forecasting of storms was the principal object of the weather service right in the beginning", declared the W. M. "And, while the work has been so extended as to take in many other activities, the preparation and distribution of forecasts continues to be the most important duty of the Weather Bureau to this day.

"These forecasts are of different classes suitable for different needs. General forecasts are made for States and sections of States. More specific forecasts are prepared for the vicinities of important cities and are issued under the heading, Portland and Vicinity, New York and Vicinity, Miami and Vicinity, St. Louis and Vicinity, and so on. These forecasts are printed in the newspapers, broadcast by radio, posted in public places where everyone may see them, or hear them. Then there are the special forecasts, as for example: Warnings of high winds, for the protection of shipping along the coasts and on the Great Lakes--- cold wave warnings, to protect property from damage by sudden and extreme cold--- frost warnings, for the protection of tender crops--- livestock warnings, for the protection of stock on the range--- alfalfa forecasts--- spray forecasts--- fire-weather forecasts--- flying weather forecasts. Among the most important of the special services is the river-stage and flood forecasts. I told you about that the other day, though.

"These forecasts save millions of dollars every year", continued the W. M. "For example, a recent official estimate of the saving in connection with the use of Weather Bureau advices in the protection of perishable freight is 100 million dollars a year. The aid of frost experts in the citrus regions of California, the pear-growing valleys of Oregon, and elsewhere, often makes the difference between success and failure. The warnings for a single cold wave recently amounted to a saving of more than 3-1/2 million dollars. Few investments made by the Federal Government pay so large

dividends as the relatively small sum appropriated for the Weather Bureau".

I was interested. The Weather Man took a long breath, and resumed his talk.

"These weather records are assembled and published and are on file in the various Weather Bureau offices, in public libraries and elsewhere and are used in countless ways by engineers, contractors, transportation companies, manufacturers, homeseekers, health seekers, investors, physicians, tourists, merchants and others.

"The assembling and distribution of this mass of weather information, from all parts of the country, is directed by Professor Marvin, head of the Weather Bureau, through numerous divisions of the central office in Washington, D. C. There is a head for each division. As the respective names of the divisions indicate, at least in part, the work carried on by that division, I think I'll give you the names of the divisions. Here they are: Office of the Chief, Office of the Assistant Chief, Office of Chief Clerk, Aerological Investigations, Agricultural Meteorology, Climatological Division, Editor, Forecast Division, Forecasting, Instrument Division, Library, Marine Division, Meteorological Physics, Printing Division, River and Flood Division, Solar Radiation Investigations, Stations and Accounts Division, Supplies Division, and Telegraph Division. It would take me about all winter to go into the work of each division fully. Perhaps you wouldn't have time to wait that long".

I laughed and told the Weather Man that he had already given me enough for today's radio talk. I told him that I believed the radio audience would know much more about the Weather Bureau when they heard his conversation. He thanked me for the good words and I bade him good day and left his office.

---ooOoo---

ANNOUNCEMENT: Later on, the U. S. Department of Agriculture will release other chats in the WEATHER MAN series. These talks will go into the work of the various divisions which the Weather Man just got through mentioning. Look for them every other Wednesday.

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UNITED STATES DEPARTMENT OF AGRICULTURE
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CHATS BY THE WEATHER MAN

Wed., Nov. 30/27

NOT FOR PUBLICATION

ANNOUNCEMENT: Folks have all sorts of queer notions about the weather. Some of them are scientific, some humorous. In today's CHATS BY THE WEATHER MAN, that hard-working individual is going to tell the radio audience of Station ____ about some Popular Weather Fallacies. Incidentally, he's going to mention common weather sayings some of which are almost as old as civilization itself. So please stand by ---

---ooOoo---

Almost 3000 years ago, Solomon was saying:

"The north wind driveth away rain".

Another great Biblical character, Job, had said:

"Fair weather cometh out of the north".

Still another ancient weather observer cautioned his followers that:

"He that observeth the wind shall not sow;
And he that regardeth the clouds shall not reap".

The Phoenician who sailed the sea in boats long before Rome was built on her seven hills, had learned to see certain kinds of storms in the clouds above and the shepherds on the hills of the ancient world had learned to read storm signs in the heavens and in nature.

Weather, of course, is the oldest thing in the world. Long before so much as a spear of grass adorned the face of the earth, frost and sunshine were alternating in the work of breaking up the heavy rocks into particles of soil. Then the winds and the rain busied themselves in spreading as a carpet, this soil which the elements had made. And ever since man first wandered on the face of the earth, he has smiled through the periods of sunshine and cowered in his caves and houses in fear of the resistless power of the elements. It was natural that man would try to find some secrets of the weather --- some method by which he could know what was coming in the future.

And so, as the weather was always an absorbing and vital subject to man, he naturally made it a favorite subject for conversation in the tent, at the gate, in the market place, in the ship. The weather wisdom of countless generations has been handed down from mouth to mouth. Many of the popular weather sayings of today are three thousand years old. Some of these sayings are polished gems of weather lore, and upheld by the later discoveries of science.

Christ's words in rebuking the Pharisees and the Sadducees:

"When it is evening, ye say, it will be fair weather:
For the sky is red;
And in the morning, it will be foul weather today:
For the sky is red and lowering"

has been modernised into the sailors' popular verse:

"Red night,
Sailors' delight;
Red morning,
Sailors take warning".

The beasts, birds, fishes, insects, leaves, flowers, and stem --- the sun, moon, stars, and the comets --- the days, hours, months, and seasons have all been called on to furnish endless sayings to predict the coming weather.

"Where the wind is on Candlemas Day,
There it will stick till the end of May"

is one of the popular ones, but erroneous.

Now in spite of the great age of the study of meteorology, such sayings as these have been almost the only dependence of man in anticipating weather conditions and preparing for them --- right up to fairly recent years. While the study of meteorology has made great progress in recent years, some of these sayings still are useful, because they are true.

But some of these omens were not good. Early man --- and later man as well -- looked to many false prophets to predict his weather for him. There was the moon, for example.

One of the earliest and most popular weather fallacies is that the moon has a great influence on the weather. It would be interesting to know for sure just how this queer notion began, but the fact that the moon undergoes marked changes in position and phase, led primitive man to believe that it has something to do with the changing phases of the weather. Those who held to the theory that the moon makes the weather, apparently forgot that the moon sheds its beams on the rest of mother earth as well as on their own small locality and that many kinds of weather may favor the earth, or even a fairly small section of it, on the same day or night. Modern man has rather lost faith in the moon as a reliable weather forecaster. Nevertheless many people believe that a "change" in the moon means a change in the weather, even to this day.

The direction and force of the winds is regulated, not by the forests, but by the distribution of air pressure over vast areas --- sometimes thousands of miles in diameter. This being the case, the forces that produce rainfall over a certain locality may have their beginning a thousand miles from the place where the rain actually falls.

Some folks think that animals have the ability to look into the future and see the kind of weather coming along. Our grandfathers used to say that when the squirrels lay in a large supply of nuts we are going to get a hard winter and that when the muskrat builds his house at a higher level than usual we're in for a wet season. Another old belief has to do with the southern flight of wild ducks and geese. If the ducks and geese fly southward earlier than usual, that means an early winter -- so watch out! The corn planters even said that when the corn husks are thicker than usual, a cold, hard winter is in store.

There isn't much in these beliefs. If the squirrels lay in a large nut supply, it's probably because there has been a generous crop of nuts. Corn husks are thick or thin according to the kind of weather that has prevailed during the growing season. If man has to make friends with science and the laws of science in order to predict the weather even for a day ahead, surely the corn plant cannot be expected to know in advance what the coming winter has in store!

Wild geese and other birds time their departure to warmer climes by the kind of weather they're having in the place from which they start. If a sudden, early cold spell should happen to strike their country in advance of the normal season, the birds will probably see in this, reasons for an early flight to warmer quarters. But their flight has no bearing on the kind of weather coming up, in the regions over which they fly. They seem to migrate for food, not temperature.

As the people grow more familiar with the laws that govern weather and weather forecasting, these old weather fallacies will be thrown aside and more reliable signs will be adopted in their place. In another generation or two, most of the fallacious weather sayings will be considered in the class of the goose-bone and ground-hog folk lore. Those that are well founded will, we hope, be wider known and better understood.

Anyhow, it has long been the goal of meteorologists to predict the weather a month, a season, a year in advance. Such forecasts, if accurate, and definite as to time and place would be of tremendous value. Using the laws of meteorology as they are understood today, the Weather Bureau is trying to give the American people accurate and trustworthy day-to-day forecasts. The Bureau is anxious to extend its forecasts to a month or a season in advance, and will do so as soon as a sound, scientific basis for such a system of forecasting is worked out.

---ooOoo---

ANNOUNCEMENT: This concludes today's CHATS BY THE WEATHER MAN, prepared by the United States Department of Agriculture, Weather Bureau and Radio Service cooperating. Another talk will be broadcast by this Station on Wednesday, December 14.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

CHATS BY THE WEATHER MAN. Wed., Dec. 14.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: The Weather Man is going to tell Station _____'s listeners what the Weather Bureau does for farmers today. His talk is one of the regular CHATS BY THE WEATHER MAN which are released every other Wednesday by the U. S. Department of Agriculture.

---oooOooo---

The Weather Man was telling me about a conversation he had with one of the leading farmers of his territory the other day. It seems that the farmer, Mr. Brown, was in town to buy some feed and he dropped in to see his friend the Weather Man, as is his custom when in town. Well, Brown walked in and the Weather Man looked up from his work and greeted his agricultural friend with these words:

"Hello, Brown--- how are the crops?"

"Hello, there", returned the farmer, "how's the weather?"

Then they both laughed. They knew that these are possibly the oldest questions in the world-- that men have been greeting each other that way for centuries.

"Well, Brown", said the Weather Man, "I think I can promise you fair weather tomorrow".

"Crops are fair, too", said Brown.

And they laughed again. By that time, things were on a familiar footing and Brown sat down near the Weather Man's work table and watched him make marks on a weather map. Occasionally he put in a word or two.

The Weather Man dipped his pen in the inkwell, looked at his friend, and smiled.

"I know why you fellows are always asking about the weather", he began.

"It's a perfectly natural and practical thing to do. An extra quarter of an inch of rain at the right time may add hundreds and thousands of bushels to your corn crop. A few degrees lower temperature may put lots of money into the potato grower's pocket. The direction of the wind is sometimes more important than the cost of farm labor. It's a mere matter of business to you fellows. Am I right?"

"Certainly you're right", admitted Brown. "And I know why you scientists are interested in crops. A larger wheat crop will mean cheaper bread. A good

year for the farmers will also mean a good year for you. Am I right?"

The Weather Man smiled again and nodded his head.

"I've learned by this time", the farmer continued, "that you meteorologists don't make the weather. What you fellows do is act as publicity agents for the forces that do actually make the weather. In other words, you tell us what's coming. And I'll admit that you're usually right. I've learned to follow those weather warnings with a lot of trust", said Brown.

"Does it pay?" asked the Weather Man. "Are you getting your money's worth?"

"How much do these warnings cost me, all told?" the farmer wanted to know.

"Oh, in a year, the price of a postage stamp", said the Weather Man.

Brown whistled softly. "Is that a fact?" he asked. "Well, I can't complain over that cost, anyhow. By the way, I'd like to know just what we farmers are getting for our two or three cents. Just go on and tell me while you're drawing those lines and circles, will you?"

"The whole story would take a long time", began the Weather Man, "but I can tell you a few things the Weather Bureau does for farmers. Of course you know that crop yields are controlled by the quantity of rainfall, sunshine, and heat received. All farm operations, of course, are encouraged or hindered by the prevailing weather. The weather is a source of worry to farmers from the time of preparation of the soil for the seed until the final harvest is gathered. Even then the producer's worry is not over, because the weather may hinder the movement of his wagon or truck hauling the crops to the freight station".

"That's true", said Brown, "but what can the farmer do about it?"

Well, he could time his farm operations by the weather warnings and forecasts gotten out by the weather office in his particular locality", the Weather Man said. "All localities are well covered and many of the main Weather Bureau offices prepare special forecast services for farmers in their special territory. Every morning and evening at 7 o'clock, Central Standard time, work speeds up at 200 different stations in the United States as observations are made of the wind, air pressure and temperature, clouds, humidity, and rainfall. Within five minutes after these observations are taken, a telegraph message in code, giving all the essential weather facts, is filed at the local telegraph offices. Within 30 minutes, these telegrams are transmitted to the District Forecast centers at Washington, Chicago, New Orleans, Denver, and San Francisco, and to about 180 other important Weather Bureau offices in various parts of the country. Trained men take these telegrams as fast as they are received, and chart the information on outline maps of the United States so that by the time the last message is received, the forecaster has a complete picture of the weather as recorded at the same moment over the whole Nation. There's your weather service in brief. The maps and the special weather fore-

casts issued by the various weather offices, give you a picture of the weather in the next 24 hours. Farmers can make good use of these warnings just as manufacturers, railroad and steamship officials, travelers, merchants, and dozens of other classes of people make use of them.

"All right. Now just a word or two about crops. Climate is responsible for a harvest value of from 10 to 20 dollars per acre from crops in parts of the Mississippi and Missouri river valleys, as compared with less than 10 cents per acre over large areas in the arid Southwest. With corn, for example, rainfall is the climatic factor of greatest importance in varying the yield. The critical period of corn growth is about the time of tasseling. On the other hand, temperature has a greater influence than rainfall in varying the yield of potatoes. July is the critical month and it must be cool for best results. The yield of spring wheat is influenced largely by the rainfall in May and June. In general, the most critical period for small grains is when the berry is in the milk or dough stage. Hot and dry weather at this time will reduce the yield of high-class seed greatly. A full knowledge of the effect of the different kinds of weather on the growth and ripening of the various farm crops would be of untold value to the farmers and other business men in this country. Some day, farmers will know enough about both crops and weather to judge the best kinds of crops for profitable growth in each particular locality".

"Does the Weather Bureau have any special services for farmers mainly?" Brown asked.

"Yes, indeed", said the Weather Man. "Of course, the general forecast and warning service is designed for the farmer as well as the business man, the housewife, and all other classes of citizens. Through the use of the radio, the newspapers, and the posted bulletins of the Weather Bureau, farmers can secure and make good use of weather reports showing weather conditions which occur daily throughout the United States. In this way, the farmers can plan their daily work with an 80 per cent assurance that predictions will be accurate. In the South, the Weather Bureau gets out cotton bulletins--- in the corn and wheat belts, special crop bulletins dealing with these crops--- in the truck garden districts, reports dealing with those products--- in Florida and California and other fruit-raising sections, special bulletins having to do with the fruit crop at different seasons of the year. The Weather Bureau has a well-organized frost warning service and fire-weather service. The first issues warnings of killing frosts so that growers can protect their crops while there is yet time. The fire-weather service is designed to protect the national and private forests from fires. This also protects those who are endangered by forest fires. Another very important Weather Bureau office specializes in flood and river-stage warnings. Millions of dollars in property values are protected every year by flood warnings which this office circulates. Other special services given out by the Weather Bureau protect shippers from losses to goods in transit from freezing or heat".

The Weather Man took a paper from his files and showed it to Brown.

"I want to give you an example of how these special weather warnings help

farmers", he said. "Out in the Great Central Valley of California, in the late summer and early fall, millions of dollars worth of fruit lays on trays in the sun to dry. Rain would ruin this fruit and cause losses running into large fortunes. One of the duties of the weather forecaster is to give warnings of such rains so that the fruit may be put under cover in time. Here's another case. In the Pacific States, the lumber industry is a large one and forest fires take a heavy toll each year. Forest fires start more easily and are harder to control when the humidity of the air is low and the wind high. It is the duty of the forecaster to announce the coming of these conditions so that extra precautions may be taken to prevent forest fires and to have the fire-fighting forces on the alert to suppress them when they start".

Farmer Brown arose from his chair and put his hat on. "That's been a mighty interesting talk", he said. "I'm beginning to appreciate what you gentlemen are doing for us".

"Thank you", said the Weather Man. Brown said good-day and the Weather Man answered the telephone, advising a traveler that he had better not take the mountain road as sleet had made it slippery and dangerous over night.

---ooOoo---

ANNOUNCEMENT: Two weeks from today, this Station will put another WEATHER CHAT on the air. You are all invited to listen in.

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CHATS BY THE WEATHER MAN Wed., Dec. 28.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Many of Station_____'s radio audience may not know that weather records and observations enter prominently into trials in law courts. In today's CHAT BY THE WEATHER MAN, prepared by the U. S. Department of Agriculture, a weather man is going to tell some of his experiences as a weather observer in the trial court. He has served as a witness about 1800 times.

---ooOooo---

It was a dark and stormy night. Thunder growled in the heavens. Rain swept down the dark streets on sweeping gusts of wind. Terror seemed to be abroad.

"An excellent night for a murder", you say.

Yes, but it was a robbery, not a murder.

A man crept upon a house, entered, and stole some goods from inside. He was seen escaping in the storm by one of the family.

The family's chauffeur was arrested on the accusation that he had been recognized as the burglar. I was called in as a witness. The verdict hung on the occurrence of a heavy rainfall on the night of the crime. At the trial, it was brought out that there had been a heavy rainfall at the time. The chauffeur's shoes were not even muddy and his clothing was dry. The jury decided that it was a case of mistaken identity and the chauffeur was released.

That's one example of weather testimony in court. The Weather Man appears in a large variety of lawsuits--- those involving personal injury, murder, robbery, arson, loss by fire, divorce, delayed construction work, damage to perishable goods and other property by storms, admiralty cases involving damage at sea, and so on at almost endless length. Weather records are very often important testimony in court rooms. The Weather Man may be asked to bear witness on many weather facts. It may be questions of sunshine, moonlight, temperature, humidity, rainfall, snowfall, wind direction or speed, visibility, condition of the ground, the timber or the foliage. Weather observers must be prepared to vouch for the accuracy of their observation and weather records.

For instance, there was the case of the man who sued the city of Chicago for damage to goods in his basement. The man said that the street was defective, allowing the water from a heavy rainfall to accumulate so that it ran down into his basement.

I was called as a witness by the city. The weather records showed that for more than a week before the date of the alleged damage, there had been no rain or snow and that the temperature had been far below zero. No water could have fallen on the street. Even if it had, it would have frozen quickly. The judge

instructed the jury to give a verdict in favor of the city.

While weather forecasts have a certain percentage of error, their verification on the average being about 88 per cent, the weather records themselves never lie. They are exact and absolutely impartial. And they have often upset and disproved the testimony of biased and interested witnesses, proving the deciding factor in a great many lawsuits.

In the fall of 1913, a breakwater was being constructed on the southern shore of Lake Michigan. The contractor claimed that he had been delayed by severe storms, especially during November when the conditions were made worse by the formation of heavy ice. Well, the dispute went to trial and I was called to present the evidence of the weather records.

The records disproved the contractor's claims. Ice practically never appears as early as November along the southern shore of Lake Michigan. Moreover, the month in question was one of the warmest Novembers on record, the temperature rising above freezing every day in the month but one. The whole month was relatively dry, with much sunshine and only one or two days with strong winds. The weather was ideal for outside work.

Then there was the company that built a power house in the northern part of a Mid Western city. When it was completed, an attempt was made to declare it a nuisance and have it removed. The complaints said that the smoke and gas from the power house were blown toward those who put in the complaints. The records proved that the prevailing winds blew in quite the opposite direction. The case was long drawn out, but the company won in the end.

I recall two similar cases. It was charged that the wind carried sparks from a railroad locomotive and set fire to nearby property. In both instances, the records showed that the wind at the time of the fire was blowing away from the property burned and that locomotive sparks could not possibly have been responsible. In view of this evidence, the judges instructed the juries to bring in verdicts in favor of the railroads.

An interesting and rather romantic case was that of Captain George Wellington Streeter. The weather played a very important part in this case. The Captain claimed that he was shipwrecked in a storm of July 10, 1886, and that his boat, the Reutan, was tossed upon a sand bar at the foot of what is now Oak Street, Chicago. In time, the watery gap between this island of sand and the mainland filled up with sand, later extending to both the north and south. It seems the Captain laid claim to all this land, gave it the name District of Lake Michigan, and insisted that it was no part of Illinois, but a separate commonwealth under the jurisdiction of the United States. He entered suit for possession of the property which was worth more than 5 million dollars.

But there was a flaw in the argument. According to the records of the weather office for that July day, there was no storm prevailing. It was a fine day with a gentle off-shore wind. The Captain lost his case.

R-C.W.M. 12/28/27

Late one November day, a farmer was driving across some railroad tracks when a locomotive struck his team and wagon, killing the horses and seriously injuring the driver. The farmer clained at the trial that he could not see the approaching train because of the heavy foliage on the trees lining the road. The weather man, however, showed that those trees, being deciduous, normally lose their leaves before the first of November. Morever, there had been several heavy frosts during that particular month before the date of the accident and the trees must have been completely bare on the day the accident occurred.

Maybe you have heard the case of the man with the frozen ear. He claimed that his frozen ear had led to erysipelas. The man had accident insurance, but no health insurance. So he claimed that the accident of his frozen ear had led to his erysipelas. He produced the weather records to show that the weather might have caused the condition.

Another man claimed that on a certain day a west wind blew a large cinder from a certain factory into his eye. This caused the loss of his sight. It was proved that the wind was actually from the west on that day, as the man said.

A weather man stationed in Chicago reports that he recently received a letter from a prominent lawyer who said that during the last 20 years he had repeatedly used the evidence of the weather records and that they had been important factors in winning at least 50 cases.

"In 1916", the lawyer says, "I was trying a very important lawsuit that grew out of a collision on a dark street. The collision occurred during a heavy rainstorm one evening. Witness, produced by my opponent, testified that there was no rain that evening, that the accident happened during the twilight, and he gave the hour of the sunset. A hurry-up call brought the weather man into the court with the weather records. They confirmed all that we had claimed in reference to the storm and showed, furthermore, that the sun had set one-half hour earlier than those witnesses had sworn! The records also showed that on the evening of the collision it was very dark at the time the collision occurred. I won the case. And I felt that the weather records were a big element in bringing about that victory."

Numerous lawyers attest to the same thing.

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ANNOUNCEMENT: Station _____ will broadcast another of Uncle Sam's interesting CHATS BY THE WEATHER MAN on Wednesday, January 11, 1928. Watch for it.